



**Investigating Service Users' and Therapists' Beliefs and Attitudes Regarding
Evidence-Based Practice and Cognitive Behavioural Therapy**

Ian Johnson

A thesis submitted in partial fulfilment of the requirements for the award of
Doctor of Clinical Psychology at the University of Sheffield

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Word Count

Literature Review

Excluding references and tables	6, 701
Including references and tables	13, 624

Research Report

Excluding references and tables	7, 997
Including references and tables	12, 187

Total

Excluding references and tables	15, 549
Including references and tables	26, 751

Overall Abstract

Cognitive Behavioural Therapy (CBT) is a widely used psychotherapy. CBT has a large evidence base indicating its effectiveness for a range of psychological difficulties. However, research has indicated that CBT is frequently not offered to service users who might benefit from it. Furthermore, CBT that is offered is often of poor quality, with therapists failing to use evidence-based techniques. It has been suggested that research into therapists' beliefs about Evidence-Based Practice (EBP) and CBT might provide insight into the under-provision of high-quality CBT. Additionally, research into service users' beliefs about CBT could provide insight into whether these beliefs are similar or different to therapists' beliefs. The similarity of service users' and therapists' beliefs has implications as to whether service users' preferences for therapy are understood and acknowledged by therapists. This thesis aimed to contribute to research in this area by investigating service users' and therapists' beliefs and attitudes regarding EBP and CBT.

The first part of the thesis reports a systematic literature review and meta-analyses. These explored the link between therapists' beliefs and attitudes regarding EBP and therapists' usage of EBP CBT. Nineteen studies were included within the systematic review and seven studies were included within each of two meta-analyses. Results indicated associations between therapists' attitudes or beliefs towards EBP and therapists' use of EBP CBT in most studies. Effect sizes varied from small to large, although the majority were small. Associations were found for both positive and negative attitudes and beliefs. Associations were found for attitudes towards EBP overall, as well as beliefs regarding specific EBP CBT techniques. Meta-analyses found a significant association between therapist openness to EBP and EBP CBT use, but not between intuitive appeal of EBP and EBP CBT use.

The second part of the thesis reports a quantitative research study. This study explored the beliefs of therapists and service users on the importance of alliance and adherence to techniques across three stages of CBT. Therapists were also asked to predict service users' beliefs regarding alliance and adherence importance. Results indicated that therapists view adherence and alliance as more important than service users do, with the largest discrepancy found over alliance in early therapy. Therapists were also found to accurately predict service users' beliefs about the alliance. However, therapists underestimated the importance of adherence to service users. Personal characteristics and experiences of CBT were found to be associated with therapists' and service users' beliefs, respectively.

Taken together, both parts of the thesis suggest that therapists' beliefs about EBP and CBT can impact their delivery of CBT. Furthermore, therapists might hold different beliefs about CBT than service users. Therapists might also make incorrect assumptions regarding the nature of service users' beliefs about therapy. These differences in beliefs and incorrect assumptions could have important clinical implications, as therapists' beliefs might be influencing them to deliver therapy that is incongruent with service users' preferences.

Acknowledgements

Firstly, I would like to thank everyone who has helped promote or participate in this research project. I am grateful for your time and input.

I am also grateful to all my colleagues who have supported me through the research process, including Tony Whiting, Jenny Richards, Victoria Owen, Dave Saxon and Filippo Varese. Special thanks to my supervisor Professor Glenn Waller, whose expertise, guidance and assistance have been invaluable.

Additional thanks to my fellow trainees for their help and friendship, particularly Amber Dugdale and Jess Furlong-Silva.

Finally, thank you to all my friends and family for their support and encouragement, particularly Sally, James, Hannah and my parents.

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Part One: Literature Review

Is There an Association between Therapists' Attitudes Towards and Use of Evidence-Based Cognitive Behavioural Therapy: A Review and Meta-Analyses

Abstract

Objective: Delivery of Evidence-Based Practice (EBP) is an important aim for healthcare services, including providers of psychological therapy. EBP therapies, such as Cognitive Behavioural Therapy (CBT), are often under-used. One factor theorised to influence therapists' use of EBP is therapists' attitudes and beliefs about EBP. The current systematic review and meta-analyses sought to investigate whether there is an association between therapists' attitudes and beliefs regarding EBP and their use of EBP within the context of CBT.

Method: Systematic literature searches were conducted using Psychinfo, Medline and Scopus databases. Search terms were variations on attitude or belief, CBT, EBP and therapist. Studies were included if they reported quantitative data on the association between therapists' attitudes or beliefs regarding EBP and therapists' reported use of EBP CBT. All eligible studies were assessed for quality. A narrative synthesis was completed. Random effects meta-analyses were also conducted on studies associating Evidence-Based Practice Attitude Scale (EBPAS) Openness and Appeal subscales with EBP CBT use.

Results: Nineteen eligible studies were included within the review, with seven studies in each of the meta-analyses. The narrative synthesis found an association between therapist attitudes or beliefs towards EBP and use of EBP in approximately two-thirds of the studies. Effect sizes varied from small to large, although the majority of effects were small. Associations were found for both positive and negative attitudes or beliefs. A notable subset of papers found consistent associations between therapists' beliefs relating to exposure in CBT and therapists' use of exposure. Meta-analyses found a significant association between EBPAS Openness to EBP and EBP CBT use ($r = 0.24$ [CI 0.09 – 0.39]), but not between EBPAS Appeal of EBP and EBP CBT use.

Meta-analyses were limited by high heterogeneity and small number of included studies.

Conclusion: Results supported the theory that therapists' attitudes and beliefs about EBP are associated with therapists' use of EBP, within the context of CBT. Specifically, openness to EBP and beliefs about specific techniques, such as exposure, were more consistently associated with EBP CBT use. This has clinical implications for the promotion of EBP CBT within services. However, these results should be interpreted in light of the review limitations, such as the variable quality of included studies and high heterogeneity of meta-analyses.

Practitioner Points:

- Fostering positive attitudes and beliefs regarding EBP approaches and techniques (such as openness) and challenging negative attitudes and beliefs regarding EBP approaches and techniques might be associated with increased EBP CBT use.
- The association between EBP attitudes or beliefs and EBP use might vary in strength and consistency. Clinicians are encouraged to consider how other factors might influence this association (such as interpersonal, social and workplace contexts).

Introduction

The process of Evidence-Based Practice (EBP) has been described by Sackett, Rosenberg, Gray, Haynes, and Richardson (1996) as “the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients”. This definition was later expanded by Sackett et al. (2000) to include three key components for optimal clinical decision-making. These components were the incorporation of patient choice, clinician expertise and the best available research evidence.

Although originating within the context of Evidence-Based Medicine (Sackett et al., 1996), pursuit of EBP has become an important driver across a range of healthcare settings. Widespread adoption of EBP as a goal is due to the intended benefits of EBP for healthcare stakeholders. For example, EBP aims to improve quality and accountability of healthcare services by offering interventions with the highest chance of a successful outcome, rather than less effective interventions based on clinician preference (Spring, 2007). Promotion of the most effective interventions also aims to improve efficiency of healthcare costs, a key consideration for the United Kingdom’s publicly funded National Health Service (McCartney & Finnikin, 2019).

The intended benefits of EBP make its pursuit an important consideration for all healthcare services, including those delivering psychological therapies. The value of EBP was recognised by the American Psychological Association (APA) in 2005, when they adopted the three-component model of EBP as official policy (APA, 2005). Within Britain, EBP has also been endorsed by the British Psychological Society (2017), the British Association for Behavioural and Cognitive Psychotherapies (2017) and the British Association for Counselling and Psychotherapy (2018).

Cognitive Behavioural Therapy is a noteworthy example of a widely endorsed evidence-based psychological therapy. CBT is a recommended treatment for a range of mental health problems, supported by numerous research trials indicating its effectiveness (David et al., 2018; Hofmann et al., 2012). Despite this, CBT is frequently not delivered to service users in routine care, even when this intervention is supported by the evidence base (Shafran et al., 2009). Furthermore, the CBT that is delivered is often of poor quality, for example, consisting of fewer sessions than the number indicated as effective by research (Kessler et al., 2007). Additionally, when therapists do deliver CBT in name, they can frequently deviate from protocols and techniques supported by the evidence base (Waller, 2009; Waller & Turner, 2016).

In order to provide high-quality EBPs such as CBT, the factors influencing delivery of EBP must be understood. Where there are barriers to provision of EBP, these should be investigated and addressed. Beliefs and attitudes of clinicians towards EBP have been suggested as an important influencing factor (Shafran et al., 2009; Waller & Turner, 2016). A central idea within CBT is the notion that beliefs and emotions can influence behaviour (Beck, 2011). Therefore, clinicians' negative beliefs and attitudes towards EBP, the likes of which have been noted and challenged in the research (Lilienfeld et al., 2013; Weisz et al., 2005), might play a role in the lack of EBP delivery. Conversely, positive beliefs and attitudes towards EBP might be associated with increased usage of EBP.

However, links between beliefs, attitudes and behaviour cannot be assumed without investigation. For example, clinicians might hold internal negative beliefs and attitudes about EBP but feel pressured into using EBPs by external factors. Alternatively, clinicians might hold positive beliefs and attitudes about EBP but other factors, such as practical constraints, might prevent clinicians from using EBPs. In a

meta-analytic review, Kraus (1995) established a substantial relationship between attitudes and related future behaviour. However, he also cautioned against considering attitudes and behaviour to be synonymous, noting the role of other factors in moderating the relationship. The Theory of Planned Behaviour (TPB; Ajzen, 1991), which has received empirical support (Armitage & Conner, 2001), also establishes the role of beliefs and attitudes in influencing behaviour. However, the TPB additionally recognises the role of other factors in shaping behaviour, such as subjective norms and the degree to which individuals perceive they have control over their actions.

The purpose of the current review is to investigate the link between attitudes, beliefs, and action, specifically within the context of EBP CBT. This investigation will provide information on the role and importance of EBP-related beliefs and attitudes, when considering EBP CBT use and adherence. Therefore, the findings of this review will have clinical implications for the importance of encouraging or challenging cognitive behavioural therapists' attitudes and beliefs, in order to promote EBP CBT delivery.

Aims

The specific aims of this review are:

- To investigate whether there is an association between CBT therapists' self-reported attitudes or beliefs regarding the nature of EBP and their usage of EBP CBT.
- To investigate whether there are differences in the associations between attitudes/beliefs and EBP CBT use, depending on the type of attitude/belief or EBP CBT use measured.

- To determine the strength of the associations between attitudes/beliefs and EBP CBT use via meta-analytic techniques.

Method

Search Strategy

Prior to the search, a protocol for the review was written and submitted to the review database PROSPERO (Booth et al., 2012). See Appendix A for PROSPERO protocol.

The PsycINFO, Medline and Scopus databases were searched on the 1st of November 2019. No start date was specified, although Medline covers articles from 1946 and PsycINFO from 1806. Scopus retrieved articles from 1805 onwards. Search terms related to beliefs and attitudes, CBT, EBP and therapists are detailed in Table 1. Terms were searched within the article abstract, title or key words. See Appendix B for full search strategy. Additional papers were identified through ‘fingertip searches’ of relevant studies’ reference lists. Identified papers were then hierarchically screened against the exclusion and inclusion criteria detailed in Table 2, according to title, abstract and then full text. Papers were included if they met all inclusion criteria and excluded if they met any exclusion criteria.

Table 1

Search terms employed during literature search

	Search terms relating to attitudes and beliefs	Search terms relating to CBT	Search terms relating to EBP	Search terms relating to therapists
<div> <div>↑</div> <div>Combined with OR</div> </div>	<ul style="list-style-type: none"> • Cognition* • Thought* • Belie* • Prefer* • Attitude* 	<ul style="list-style-type: none"> • CBT • "Cognitive Behavior* *Therap*" • "Behavio* *Therap*" 	<ul style="list-style-type: none"> • "Evidence-Base*" • Evidence • EBT • EBP • "Empirically-supported treatment*" • "Empirically supported treatment*" • EST 	<ul style="list-style-type: none"> • Psychologist* • "*therapist*" • Practitioner* • "Mental Health Worker*" • Clinician*
	<div> <div>→</div> <div>Combined with AND</div> </div>			

Table 2

Inclusion and exclusion criteria for articles

Inclusion criteria	Exclusion criteria
<ul style="list-style-type: none"> • Published studies. • Articles in English. • Studies must include a quantitative measure of therapists' attitudes or subjective beliefs towards EBP in general, a specific EBP (e.g. Trauma-Focused CBT) or an element of EBP (e.g. use of exposure within CBT). • EBP attitude/belief measures must focus on therapists' appraisal of EBPs and their subjective qualities (e.g. their importance, suitability, pros and cons of use, qualities of the EBP that are facilitators or barriers to implementation etc.). • Within studies, therapists must be recruited from professional contexts involving regular work with individuals with mental health difficulties (e.g. private practice, community mental health teams, mental health clinicians within schools). Self-identified therapists from different professional backgrounds (e.g. clinical psychologist, nurse etc.) are permitted. No limitation on length or type of therapy training is specified. 	<ul style="list-style-type: none"> • The grey literature (e.g dissertation abstracts). • Articles not in English. • Qualitative research. • Studies published after 01/11/19 (date of search). • Studies with EBP attitude/belief measures focusing solely on therapists' objective knowledge about EBPs and their components (e.g. whether various approaches are evidence-based or not) or beliefs about their own ability or competency to apply EBPs. • Studies with implementation, adherence or utilisation measures focusing solely on alternatives to EBP.

Inclusion criteria	Exclusion criteria
<ul style="list-style-type: none"> • Studies must include a quantitative measure of therapists' reported use of or adherence to an evidence-based Cognitive Behavioural Therapy (e.g. a type of evidence-based CBT or specific evidence-based CBT technique(s)). • Reported use of or adherence to CBT must refer to actual clinical practice within an evidence-based context (e.g. use of CBT for anxiety in adults). • Studies must report quantitative data linking therapists' EBP attitudes or beliefs to their reported use of, or adherence to, EBP (e.g. correlations, prediction of group membership etc.) • For the meta-analysis, studies will be included if they report data on Evidence-Based Practice Attitude Scale (EBPAS) 'Openness' and 'Appeal' subscales. 	<ul style="list-style-type: none"> • Reported use of or adherence to CBT is not contextualised in relation to a specific client group and/or target problem/diagnosis (e.g. 'CBT in general practice') • Implementation, adherence or utilisation measures refer solely to reported intention to implement EBP or hypothetical adoption of EBP. For example, in response to a vignette or simulated practice via role-play, rather than actual clinical practice. • Multiple EBPs, including non-CBT EBPs, are reported on but not separated within the analysis. Therefore, the available data linking EBP attitudes or beliefs to their usage does not refer solely to CBT EBPs. • For the meta-analysis, studies will be excluded if they do not report data allowing effect sizes to be converted into the r family, thus preventing comparisons between studies.

Planned Analysis

A preliminary scoping search revealed several different measures of therapists' attitudes and beliefs regarding EBP. There was also a preponderance of studies using the Evidence-Based Practice Attitude Scale (EBPAS; Aarons, 2004). It was decided that non-EBPAS results would be summarised via a narrative synthesis. Meta-analyses would also be conducted on EBPAS studies, specifically focusing on EBPAS Openness and Acceptance subscales. The Openness subscale measures individuals' openness to using new EBPs. The Appeal subscale measures the intuitive appeal individuals feel towards EBPs. Thus, these subscales represent intrinsic attitudes regarding the nature of EBP and are particularly relevant to the aims of this review. EBPAS Requirements and Divergence subscales were not included in meta-analyses. These subscales incorporate responses to external factors, such as current practice, service structures and requirements, rather than focusing solely on intrinsic attitudes towards the nature of EBP itself. They are therefore less relevant to the aims of this review.

The meta-analysis was performed using the online software 'Meta-Essentials' (Suurmond et al., 2017). A random effects model was used, as there was variation across study characteristics and therefore no single underlying true effect size could be assumed (Borenstein et al., 2009). Where statistical associations between EBPAS Appeal or Openness scores and EBP usage were reported, these were extracted and included in the meta-analyses. As data were taken from multiple regression models, meta-analyses on partial correlational data were performed, in order to partial out the effects of other variables within the regression models (Aloe, 2014). For studies to be included in the meta-analyses they were required to report sample size, number of predictors within a regression model, and the partial correlation and/or standardised beta weight of the predictor of interest. As the distributional behaviours of Fisher's transformed

values of partial correlations are not well known, Fisher's z transformation was not performed (Van Rhee, Suurmond, & Hak 2015).

The degree of heterogeneity between studies included in the meta-analyses was estimated using the Q-statistic and I^2 value. The Q-statistic is the weighted sum of squared differences between observed effects and the weighted average effect. Significance of the Q statistic indicates heterogeneity, which can be further investigated with reference to I^2 . I^2 estimates the proportion of observed variance reflecting true differences in effect size, expressed as a percentage (Borenstein et al., 2009). As suggested by Higgins, Thompson, Deeks, and Altman (2003), I^2 values of 25%, 50% and 75% were considered to represent low, moderate and high heterogeneity respectively. Publication bias was assessed using funnel plots and Egger's regression test, assessing funnel plot symmetry (Egger et al., 1997).

Quality Assessment

A scoping search revealed studies that primarily employed explorative survey methods, measuring clinicians' views on EBP and therapeutic practices at a single time point. Protogerou and Hagger (2019) have noted the lack of a specialist quality assessment tool for these types of studies, with quality assessment of experimental designs being easier to conduct. They noted that previous reviews of survey studies have adapted existing quality assessment tools (Godfrey et al., 2015; Hagger et al., 2017; Hoffmann et al., 2017; Pantelic et al., 2015; Santos et al., 2017; Young et al., 2014). This approach was used in the current review, with the Downs and Black (1998) checklist adopted as the basis for quality assessment. This tool addresses both internal and external validity as well as quality of reporting and statistical power of studies. It covers the relevant quality assessment criteria given in the aforementioned reviews. Furthermore, it has been assessed by Deeks et al. (2003) as one of the best quality

assessment tools for non-randomised studies, according to its scope, comprehensiveness and ease of use. See Appendix C for the full checklist.

Regarding the adaptations to the Downs and Black (1998) checklist, as per previous research (O'Connor et al., 2015), a simplification to item 27 was made whereby one point was allocated if the study was reported to have adequate power to detect a significant effect. Furthermore, some items were marked as 'not applicable' for given studies and removed from the quality assessment total. These included, for example, questions regarding randomisation and blinding of participant allocation to intervention groups when no such groups were used. Therefore, studies were scored between 0 to a maximum of 18-28 points. For comparison, quality scores were also reported as a percentage of maximum possible quality rating for each study. Qualitative quality ratings were adapted from O'Connor et al. (2015) and defined as 'Excellent' quality (85-100%), 'Good' (68-84%), 'Fair' (51-67%), or 'poor' (50% or less).

Inclusion of low-quality papers can bias the conclusions of systematic reviews, although excluding papers on grounds of quality can also limit the clinical applicability of results. Therefore, Meline (2006) suggests using an intermediate approach. Following quality assessment, it was deemed that lower-quality studies would be excluded from the review if there was a significant 'gap' in assessed quality, representing a difference of greater than 10% in quality percentage scores.

To establish interrater reliability of quality assessment scores, a subset of four studies (21.1%) were assessed for quality by an independent rater. This independent rater was a doctoral clinical psychology trainee. Scores from the primary researcher and independent rater were then compared using the Cohen's kappa statistic. The Cohen's kappa statistic was interpreted with reference to the agreement values specified in

McHugh (2012), whereby 0-0.2 is considered no agreement, 0.21-0.39 is minimal, 0.40-0.59 is weak, 0.60-0.79 is moderate, 0.80-0.90 is strong and above 0.90 is almost perfect agreement. It was agreed that if a kappa value of less than 0.80 was obtained, further discussion of the quality assessment ratings would take place, followed by re-rating the same subset of papers to establish if a greater consensus had been reached.

Results

Search Results

Database searches identified 1605 articles. Duplicate articles were removed. Articles were then screened by title, then abstract and finally full text. Four additional articles were identified from ‘fingertip searches’, i.e. reviewing the references lists of full text articles screened. In total, 19 articles were included for quality assessment. See the PRISMA diagram in Figure 1 for full details of the search process.

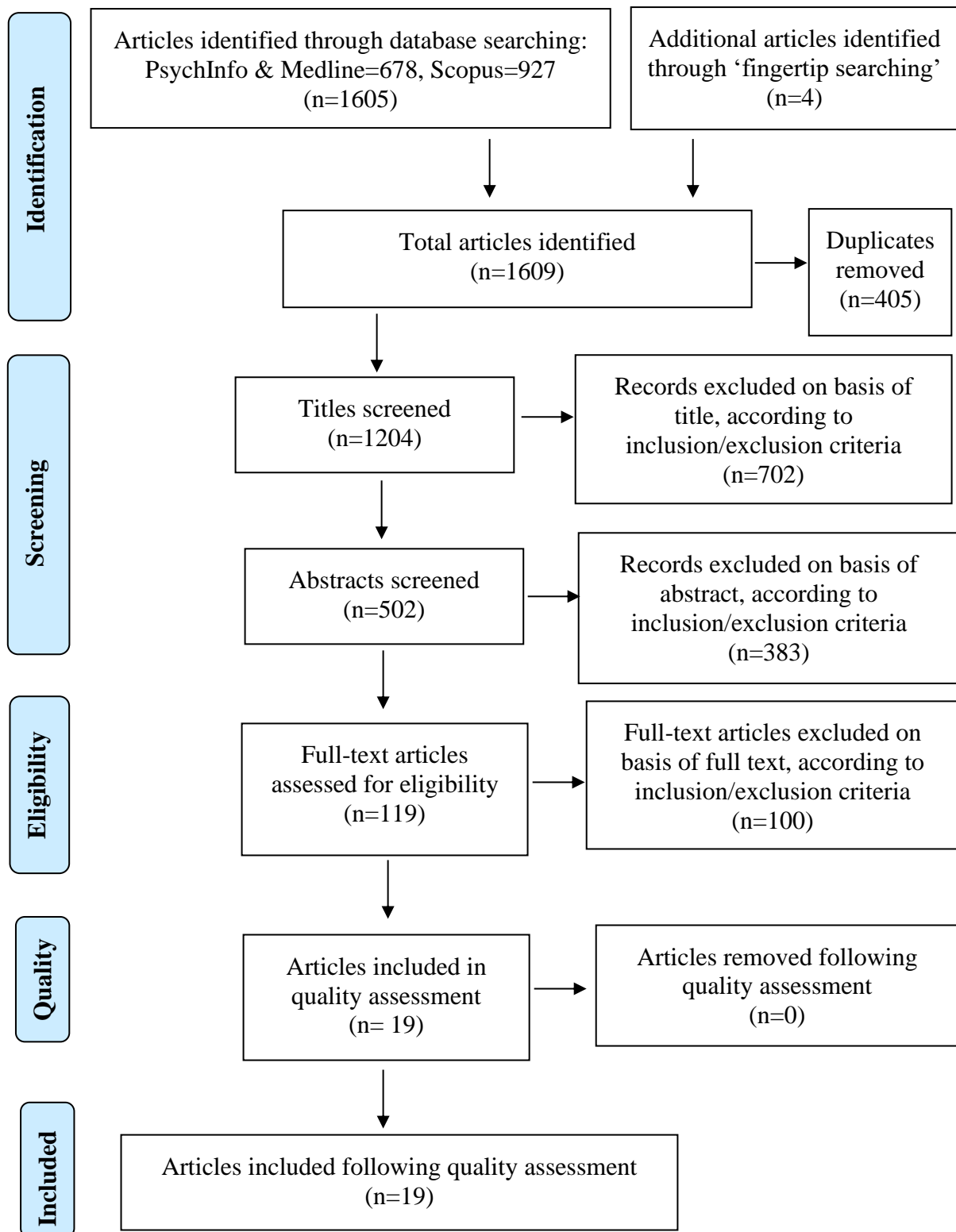


Figure 1. PRISMA (Moher et al., 2009) diagram detailing literature search process

Study Characteristics

The majority of therapists were recruited from community or outpatient settings. Therapists' specified client group was children or youth in 13 papers, adults in three papers, and individuals of no specified age group in five papers. Eleven studies investigated the use of a type of CBT for specific client groups or conditions, whereas six studies focused on the use of exposure techniques within CBT specifically. Trauma-Focused CBT was specifically considered in two papers. Other individual papers reported on the use of the cognitive and/or behavioural therapies of Prolonged Exposure, Cognitive Processing Therapy, Stress Inoculation Training and Community Reinforcement Approach. Anxiety was the most commonly listed therapy focus, with seven papers discussing use of therapy for anxiety and five focusing on Post-Traumatic Stress Disorder or trauma specifically. Other problems noted in papers included depression, substance use and addiction. Regarding location, 13 studies were conducted in the United States, with others based in the United Kingdom, The Netherlands, Canada, Germany or internationally. For further study details, see Table 3.

Table 3

Study details

Paper	Location	Clinicians (n)	Area / client group	Evidence-based CBT
Allen and Crosby (2014)	Across the United States	Youth community mental health clinicians (n=285)	Neglected and abused children, 12 years or younger	CBT with children who have experienced trauma
Becker-Haimes et al. (2017)	Philadelphia, United States	Youth community mental health clinicians (n=335)	Youth with anxiety	Use of exposure within CBT for anxious youth
Becker-Haimes, Williams, Okamura, and Beidas (2019)	Philadelphia, United States	Youth community mental health clinicians (n=247)	Youth with varying mental health difficulties	CBT with youth
Beidas et al. (2014)	Northeast United States	Youth community mental health clinicians who attended training on CBT for youth anxiety (n=115).	Youth (aged 8-17) with anxiety	CBT with anxious youth
Beidas et al. (2015)	Philadelphia, United States	Youth and child community mental health clinicians (n=130)	Youth with varying mental health difficulties	CBT with youth

Paper	Location	Clinicians (n)	Area / client group	Evidence-based CBT
Beidas et al. (2017)	Philadelphia, United States	Youth outpatient behavioural health service clinicians (n=247)	Youth and children with varying mental health difficulties	CBT with youth
Czincz and Romano (2013)	Ontario, Canada	Youth and child psychologists and psychological associates (n=231)	Youth and children with experience of sexual abuse	TF-CBT
Finley et al. (2018)	Texas, United States	Community psychotherapy providers (n=463)	Adult military veterans with post-traumatic stress disorder	PE, CPT or SIT
Gray, Elhai and Schmidt (2007)	International	Members of the International Society of Traumatic Stress Studies and self-identified trauma professionals (n=461)	Individuals with trauma	CBT for individuals with trauma
Kolko, Cohen, Mannarino, Baumann, and Knudsen (2009)	Across the United States	Community practitioners from National Child Traumatic Stress Network treatment programmes, who attended training in TF-CBT for child trauma (n=401)	Youth and children with experience of sexual abuse	CBT with children who have experienced sexual abuse, including the use of gradual exposure
Kraan, Dijkstra, and Markus (2018)	The Netherlands	Outpatient therapists from two addiction centres (n=69)	Individuals with addiction difficulties	CRA

Paper	Location	Clinicians (n)	Area / client group	Evidence-based CBT
Lewis and Simons (2011)	Oregon, United States	Community therapists who attended training on CBT for depression (n=24)	Youth and adults with depression	CBT for depression
Parker and Waller (2017)	United Kingdom	Clinicians from the British Association for Behavioural and Cognitive Psychotherapies, British Psychological Society and UK teaching workshops (n=280)	Individuals with anxiety	CBT for anxiety
Pemberton et al. (2017)	Arkansas, United States	Child clinicians from community and inpatient mental health centres, child advocacy centres, medical centres, private practice and schools who attended TF-CBT training (n=178)	Children with trauma	TF-CBT, including consultation calls
Pittig, Kotter, and Hoyer (2019)	Germany	Behavioural psychotherapists working in outpatient routine care (n=684)	Individuals with anxiety	Use of exposure within CBT for anxiety
Reid et al. (2018)	Across the United States	Youth and child private practice therapists (n=257)	Youth and children (aged 7-17) with anxiety	CBT for anxiety including use of exposure

Paper	Location	Clinicians (n)	Area / client group	Evidence-based CBT
Sars and Minnen (2015)	The Netherlands	CBT therapists or trainee therapists from the Dutch Association for Behavioural and Cognitive Therapists (n=490)	Individuals with social anxiety, phobia, panic and/or obsessive-compulsive disorder	Use of exposure within CBT for anxiety
Whiteside, Deacon, Benito, and Stewart (2016)	Minnesota, United States	Child outpatient clinicians (n=331)	Children with anxiety	Use of exposure within CBT for anxiety
Wiltsey Stirman et al. (2015)	Philadelphia, United States	Clinicians who had attended CBT training in work with adults (n=27) or children (n=50)	Adults with depression and co-occurring problems and children with anxiety	CBT for adult depression, anxiety and substance use and CBT for child anxiety

Key: CBT=Cognitive Behavioural Therapy, CRA=Community Reinforcement Approach, CPT=Cognitive Processing Therapy, PE=Prolonged

Exposure, SIT=Stress Inoculation Training, TF-CBT=Trauma Focused Cognitive Behavioural Therapy

Measures Used

The most commonly used measure of therapist attitudes and/or beliefs regarding EBP was the EBPAS (Aarons, 2004). The EBPAS was used in 10 studies. Seven of these studies reported all four subscales. A further study reported Requirements, Appeal and Openness subscales, but not Divergence. The final two reported EBPAS total scores, but not the subscales. Another measure used in multiple studies was the Therapist Beliefs about Exposure Scale (TBES; Deacon et al., 2013), which was used in three studies. Several other measures were used in individual studies. See Appendix D for a full list of the therapist attitude/belief measures used.

The most commonly used measure of therapist EBP CBT usage or adherence was the Therapy Procedures Checklist—Family Revised (TPC-FR; Weersing, Weisz, & Donenberg, 2002), which was used in six studies. Other measures were used in individual studies. See Appendix D for a full list of CBT use/adherence measures.

Results of Quality Assessment

Interrater Reliability

Initial comparisons of quality assessment ratings on a subsection of four papers were conducted. These indicated a ‘minimal’ level of interrater reliability between the primary and independent raters, with a kappa statistic of 0.30 (McHugh, 2012). Discussion between the raters revealed inconsistency in the interpretation of several items on the Downs and Black checklist (1998). Areas of disagreement mostly related to the application of the checklist within the context of survey research. Disagreements were explored and a consensus between the raters was reached. Disagreements included what constituted clear inclusion and exclusion criteria (checklist item 3), that items referencing an ‘intervention’ (items 4, 19) were interpreted as referring to the EBP CBT

intervention rather than the completion of the survey and that items referencing follow-up data (items 9, 26) were not applicable for studies which did not indicate a follow-up. After discussions, the same subset of four papers were re-rated for quality by the primary researcher and independent rater. Quality ratings were once again compared, revealing a kappa statistic of 0.96, indicating ‘almost perfect’ interrater reliability (McHugh, 2012). All papers were then assessed for quality by the primary researcher, according to the consensus reached between raters.

Final Quality Ratings

Quality percentage ratings varied from 45% - 78%, with most studies rated ‘Fair’ (nine studies) or ‘Good’ (seven studies). Three studies were rated ‘poor’. However, there was a smooth continuum between quality scores with no gaps higher than a 10% quality percentage rating. As such, no studies were excluded on the grounds of quality. Common quality limitations included a lack of reporting on potential adverse effects of the study, lack of clarity around whether the sample of therapists chosen was representative of the wider population and lack of exact probability values in reporting. The degree to which studies were sufficiently powered was also frequently deemed undeterminable. See Table 4 for full details of quality assessment

Table 4.

Downs and Black (1998) Quality Assessment

Study	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
Allen and Crosby (2014)	Yes	No	Yes	Yes	Yes	Yes	No	No	N/A	No	Yes	UTD	No	N/A	N/A	UTD	N/A	Yes
Becker-Haimes et al. (2017)	Yes	Yes	No	Yes	P	Yes	Yes	No	N/A	Yes	No	UTD	UTD	N/A	N/A	Yes	N/A	Yes
Becker-Haimes et al. (2019)	Yes	Yes	Yes	Yes	P	Yes	Yes	No	N/A	No	No	UTD	UTD	N/A	N/A	Yes	N/A	Yes
Beidas et al. (2014)	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	UTD	UTD	UTD	No	Yes	Yes	UTD	Yes
Beidas et al. (2015)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	N/A	No	UTD	UTD	Yes	N/A	N/A	Yes	N/A	Yes
Beidas et al. (2017)	Yes	Yes	Yes	Yes	P	Yes	Yes	No	N/A	No	UTD	Yes	Yes	N/A	N/A	Yes	N/A	Yes
Czincz and Romano (2013)	Yes	Yes	No	Yes	P	Yes	Yes	No	N/A	No	Yes	Yes	UTD	N/A	N/A	Yes	N/A	Yes
Finley et al. (2018)	No	Yes	Yes	Yes	Yes	Yes	Yes	No	N/A	No	Yes	UTD	Yes	N/A	N/A	Yes	N/A	Yes
Gray et al (2007)	Yes	Yes	No	Yes	Yes	No	Yes	No	N/A	No	UTD	UTD	UTD	N/A	N/A	UTD	N/A	Yes
Kolko et al. (2009)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	N/A	No	Yes	UTD	Yes	N/A	N/A	Yes	N/A	Yes
Kraan et al (2018)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	N/A	No	UTD	Yes	Yes	N/A	N/A	Yes	N/A	Yes
Lewis and Simons (2011)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	UTD	UTD	UTD	N/A	N/A	Yes	N/A	Yes
Parker and Waller (2017)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	N/A	Yes	UTD	UTD	UTD	N/A	N/A	Yes	N/A	Yes
Pemberton et al. (2017)	Yes	Yes	Yes	Yes	P	Yes	Yes	No	Yes	No	UTD	UTD	UTD	N/A	N/A	Yes	UTD	Yes
Pittig et al. (2019)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	N/A	No	Yes	UTD	UTD	N/A	N/A	Yes	N/A	Yes
Reid et al. (2018)	Yes	Yes	Yes	Yes	Yes	Yes	No	No	N/A	No	UTD	Yes	Yes	N/A	N/A	Yes	N/A	Yes
Sars and van Minnen (2015)	Yes	Yes	Yes	Yes	P	Yes	Yes	No	N/A	No	Yes	Yes	Yes	N/A	N/A	UTD	N/A	Yes
Whiteside et al. (2016)	Yes	Yes	No	Yes	P	Yes	Yes	No	N/A	No	Yes	UTD	Yes	N/A	N/A	UTD	N/A	Yes
Wiltsey Stirman et al. (2015)	Yes	Yes	No	Yes	P	Yes	Yes	No	No	No	UTD	UTD	UTD	N/A	N/A	Yes	N/A	Yes

Study	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Quality Total	Quality Percentage	Quality Rating
Allen and Crosby (2014)	N/A	UTD	N/A	N/A	N/A	N/A	Yes	N/A	UTD	9/18	50%	Poor
Becker-Haimes et al. (2017)	N/A	Yes	N/A	N/A	N/A	N/A	Yes	N/A	No	11/18	61%	Fair
Becker-Haimes et al. (2019)	N/A	Yes	N/A	N/A	N/A	N/A	Yes	N/A	UTD	11/18	61%	Fair
Beidas et al. (2014)	Yes	UTD	Yes	UTD	Yes	Yes	Yes	No	No	15/28	54%	Fair
Beidas et al. (2015)	N/A	Yes	N/A	N/A	N/A	N/A	Yes	N/A	UTD	13/18	72%	Good
Beidas et al. (2017)	N/A	Yes	N/A	N/A	N/A	N/A	Yes	N/A	UTD	13/18	72%	Good
Czincz and Romano (2013)	N/A	Yes	N/A	N/A	N/A	N/A	Yes	N/A	Yes	13/18	72%	Good
Finley et al. (2018)	N/A	UTD	N/A	N/A	N/A	N/A	Yes	N/A	UTD	12/18	67%	Fair
Gray et al (2007)	N/A	Yes	Yes	Yes	No	No	No	N/A	UTD	10/22	45%	Poor
Kolko et al. (2009)	N/A	Yes	N/A	N/A	N/A	N/A	Yes	N/A	UTD	14/18	78%	Good
Kraan et al (2018)	N/A	No	N/A	N/A	N/A	N/A	Yes	N/A	UTD	13/18	72%	Good
Lewis and Simons (2011)	N/A	Yes	N/A	N/A	N/A	N/A	UTD	No	No	10/20	50%	Poor
Parker and Waller (2017)	N/A	No	N/A	N/A	N/A	N/A	Yes	N/A	UTD	12/18	67%	Fair
Pemberton et al. (2017)	N/A	Yes	N/A	N/A	N/A	N/A	No	Yes	UTD	12/20	60%	Fair
Pittig et al. (2019)	N/A	Yes	N/A	N/A	N/A	N/A	Yes	N/A	UTD	13/18	72%	Good
Reid et al. (2018)	N/A	Yes	N/A	N/A	N/A	N/A	UTD	N/A	UTD	12/18	67%	Fair
Sars and van Minnen (2015)	N/A	Yes	N/A	N/A	N/A	N/A	Yes	N/A	UTD	13/18	72%	Good
Whiteside et al. (2016)	N/A	Yes	N/A	N/A	N/A	N/A	Yes	N/A	UTD	11/18	61%	Fair
Wiltsey Stirman et al. (2015)	No	Yes	Yes	Yes	No	No	Yes	No	Yes	14/26	54%	Fair

Key: N/A=Not Applicable, P=Partially, UTD=Unable To Determine,

Scoring: Maximum 28 points, although this varies between 18-28 according to methodology of selected studies.

Yes=1 point (or 2 points for Q5), Partially=1 point, No/UTD=0 points. N/A=Question removed from total.

Data Extraction

Results of the reviewed studies are included in Table 5. Effect sizes are presented as Pearson's r where this was possible. Data were converted to r using online effect size convertors (DeCoster, 2012; Wilson, n.d.). Standardised regression beta coefficients were converted using Peterson and Brown's (2005) formula. All reported beta coefficients fit the assumptions specified within this paper. Some studies reported effect sizes as unstandardized regression beta coefficients, or Spearman's ρ , which could not be converted to Pearson's r .

Where correlations and regression analyses were both applied on variables within the same study, only regression analyses were reported. Likewise, only multivariate regression analyses were reported when these were subsequent to univariate analyses (e.g., Czincz & Romano, 2013), as these allow greater control for collinearity. Sars and Minnen (2015) reported data on several exposure techniques, although summarised key findings in Table 5 refer to therapist-directed in vivo exposure specifically, as this is noted as an optimal exposure technique (Reid et al., 2018).

Table 5.

Summarised results of the studies included within the review

Paper	Evidence-Based Practice attitude / belief measures	Evidence-Based Practice usage / adherence measures	Statistical analysis	Relationship effect size and significance*
Allen and Crosby § (2014)	EBPAS Requirements EBPAS Appeal EBPAS Openness EBPAS Divergence BASS Clinician-directed BASS Verbal capacity	TTS measuring self-reported selection of therapeutic techniques, including CBT techniques	Simultaneous regression analyses assessing predictors of CBT technique selection	EBPAS Requirements: 0.07, p=NS EBPAS Appeal: 0.21, p<0.05 EBPAS Openness: 0.33, p<0.001 EBPAS Divergence: -0.06, p=NS BASS Clinician-directed: 0.33, p<0.001 BASS Verbal capacity: 0.21, p<0.01
Becker-Haimes et al. § (2017)	EBPAS Requirements EBPAS Appeal EBPAS Openness EBPAS Divergence	TPC-FR measuring self-reported exposure use	Mixed effects regression models assessing predictors of exposure use. Exposure use reported as a continuous variable (the degree to which exposure is used) or a binary variable (whether exposure is used or not in routine practice).	<u>Continuous</u> EBPAS Requirements: -0.03, p=0.23 EBPAS Appeal: 0.26, p=0.58 EBPAS Openness: 0.54, p=0.15 EBPAS Divergence: -0.38, p=0.25 <u>Binary</u> EBPAS Requirements: 0.10, p=0.36 EBPAS Appeal: 0.09, p=0.65 EBPAS Openness: 0.34, p=0.06 EBPAS Divergence: 0.13, p=0.41

Paper	Evidence-Based Practice attitude / belief measures	Evidence-Based Practice usage / adherence measures	Statistical analysis	Relationship effect size and significance*
Becker-Haimes, Williams, Okamura, and Beidas (2019)	EBPAS Requirements EBPAS Appeal EBPAS Openness	TPC-FR measuring self-reported CBT technique use	Mixed effects regression modelling assessing predictors of CBT technique use. Predictors were considered within three separate models of workplace climates: Proficiency culture (regarding norms and expectations to place the client first and be up-to-date with treatment practices), Functional culture (regarding the extent therapists understand their role in the organisation and complete work effectively) and Implementation culture (high focus on EBP)	<u>Proficiency culture model</u> EBPAS Requirements: $<0.01^{\dagger}$ p=NS EBPAS Appeal: $<0.01^{\dagger}$, p=NS EBPAS Openness: 0.17, p<0.01 <u>Functional culture model</u> EBPAS Requirements: 0.02^{\dagger} p=NS EBPAS Appeal: -0.03^{\dagger} , p=NS EBPAS Openness: 0.21[†], p<0.01 <u>Implementation culture model</u> EBPAS Requirements: -0.01^{\dagger} p=NS EBPAS Appeal: -0.02^{\dagger} , p=NS EBPAS Openness: 0.17[†], p<0.01
Beidas et al. [§] (2014)	EBPAS Requirements EBPAS Appeal EBPAS Openness EBPAS Divergence CDAQ Opinion CDAQ Usefulness CDAQ Confidence CDAQ Motivation	Post-CBT training penetration (the percentage of anxious youth treated by CBT in a 3-month period) as measured by ITAY	Multiple regression assessing predictors of CBT penetration	EBPAS Requirements: 0.19, p=NS EBPAS Appeal: -0.16, p=NS EBPAS Openness: 0.12, p=NS EBPAS Divergence: 0.29, p=NS CDAQ Opinion: -0.22, p=NS CDAQ Usefulness: -0.05, p=NS CDAQ Confidence: 0.09, p=NS CDAQ Motivation: 0.25, p=NS

Paper	Evidence-Based Practice attitude / belief measures	Evidence-Based Practice usage / adherence measures	Statistical analysis	Relationship effect size and significance*
Beidas et al. [§] (2015)	EBPAS Requirements EBPAS Appeal EBPAS Openness EBPAS Divergence	TPC-FR measuring self-reported CBT technique use	Linear mixed effects regression models establishing predictors of CBT technique usage	EBPAS Requirements: -0.02 p=NS EBPAS Appeal: 0.04, p=NS EBPAS Openness: 0.10, p<0.05 EBPAS Divergence: 0.07, p=NS
Beidas et al. [§] (2017)	EBPAS Requirements EBPAS Appeal EBPAS Openness EBPAS Divergence	TPC-FR measuring self-reported CBT technique use	Regression analyses predicting use of CBT techniques for clinicians participating and not participating in EBP city-sponsored initiatives	<u>Participating in EBP initiatives</u> EBPAS Requirements: -0.08 p=NS EBPAS Appeal: 0.02, p=NS EBPAS Openness: 0.23, p<0.01 EBPAS Divergence: 0.17, p=NS <u>Not participating in EBP initiatives</u> EBPAS Requirements: .008, p=NS EBPAS Appeal: -0.03, p=NS EBPAS Openness: 0.12, p=NS EBPAS Divergence: 0.04, p=NS
Czincz and Romano [§] (2013)	EBPAS Requirements EBPAS Appeal EBPAS Openness EBPAS Divergence	TPC-FR abbreviated, measuring self-reported CBT technique use	Regression model predicting TF-CBT technique usage	<u>Regression model</u> EBPAS Requirements: NR, p=NS EBPAS Appeal: 0.08, p=NS EBPAS Openness: 0.11, p=NS EBPAS Divergence: NR, p=NS

Paper	Evidence-Based Practice attitude / belief measures	Evidence-Based Practice usage / adherence measures	Statistical analysis	Relationship effect size and significance*
Finley et al. (2018)	Attitudes towards EBP scale and perceived barriers toward EBP scale	Self-reported usage (Yes/No) of PE, CPT or SIT with any previous service users with PTSD	Multivariable logistic regression predicting usage of PE, CPT or SIT	<u>CPT use</u> Attitudes to EBPs: 0.01, NS Perceived barriers to EBPs: 0.02, NS <u>PE use</u> Attitudes to EBPs: < 0.01, NS Perceived barriers to EBPs: 0.04, NS <u>SIT use</u> Attitudes to EBPs: 0.01, NS Perceived barriers to EBPs: 0.01, NS
Gray, Elhai and Schmidt (2007)	EBPAS total	Self-report of therapists' primary treatment approach to trauma cases	Independent t-tests comparing therapists with a self-reported primary approach of exposure-based CBT vs non-EBPs	EBPAS scores higher for EBP than non-EBP group: 0.27, p<0.01

Paper	Evidence-Based Practice attitude / belief measures	Evidence-Based Practice usage / adherence measures	Statistical analysis	Relationship effect size and significance*
Kolko, Cohen, Mannarino, Baumann, and Knudsen (2009)	Self-reported beliefs regarding the importance of cognitive restructuring and exposure for positive outcomes of treatment in child sexual abuse cases. Self-reported positive perspectives towards treatment manuals as measured by five items adapted from the NSQ	Adapted TPC-FR measuring self-reported CBT technique use, with additional items to measure use of gradual exposure	Correlations between beliefs regarding importance of therapy techniques and use of CBT techniques Multiple linear regression identifying predictors of gradual exposure use	<u>Correlations</u> Importance of cognitive restructuring beliefs and use of cognitive therapy: 0.51, p<0.001 Importance of exposure beliefs and use of exposure: 0.31, p<0.001 <u>Regression</u> Treatment manual perspectives and use of exposure (NSQ): 0.22, p<0.001
Kraan, Dijkstra, and Markus (2018)	Percentage ratings of perceived difficulty and meaningfulness of CRA key techniques	CRA Survey of Use – self-reported delivery of CRA key parts	Spearman’s correlations between therapists’ perceived meaningfulness / difficulty of CRA techniques and their reported usage of these techniques	<u>Use of reinforcers</u> Meaningfulness: 0.91[‡], p<0.01 Difficulty: -0.25[‡], p=0.02 <u>Use of homework</u> Meaningfulness: 0.82[‡], p<0.01 Difficulty: -0.15[‡], p=0.12 <u>Use of role-play</u> Meaningfulness: 0.59[‡], p<0.01 Difficulty: -0.35[‡], p<0.01

Paper	Evidence-Based Practice attitude / belief measures	Evidence-Based Practice usage / adherence measures	Statistical analysis	Relationship effect size and significance*
Lewis and Simons (2011)	MPAS total	Self-reported usage of CBT training and interventions pre- and 8 months post-CBT training	Pearson product-moment correlations between MPAS total and usage of CBT interventions	Pre-training: -0.06, p=NS Post-training follow-up: -0.07, P=NS
Parker and Waller (2017)	NACS total	Use of all CBT techniques, psychoeducation and general CBT techniques, cognitive techniques and behavioural techniques, as measured by the TMQ	Multiple linear regressions establishing if NACS scores predict use of CBT techniques	All CBT techniques: -0.41, p<0.001 Psychoeducation and general CBT techniques: -0.46, p<0.001 Cognitive techniques: -0.34, p<0.001 Behavioural techniques: -0.11, p=0.113
Pemberton et al. (2017)	EBPAS total	Number of TF-CBT consultation calls, number of cases presented during calls and number of TF-CBT online assessment tools used in 1 year	Multiple regression determining if EBP attitudes predicted TF-CBT utilisation volume, following removal of participants with no calls	Number of calls: 0.13 [†] , p=NS Number of cases: 0.02, p=NS Number of assessments: 0.20, p<0.05

Paper	Evidence-Based Practice attitude / belief measures	Evidence-Based Practice usage / adherence measures	Statistical analysis	Relationship effect size and significance*
Pittig, Kotter, and Hoyer (2019)	TBES total	Self-reported percentage of cases in which exposure was used	Multiple linear regression determining if negative exposure beliefs predict exposure utilisation, with and without therapist distress (due to collinearity)	<u>With therapist distress</u> Negative beliefs: -0.35, p<0.001 <u>Without therapist distress</u> Negative beliefs: -0.21, p<0.001
Reid et al. (2018)	TBES total	Self-reported percentage of times therapy techniques, including exposure, were used throughout the previous year.	Linear regression determining if TBES scores predicted optimal exposure utilisation (therapist-assisted in vivo).	TBES: -0.52, p<0.001

Paper	Evidence-Based Practice attitude / belief measures	Evidence-Based Practice usage / adherence measures	Statistical analysis	Relationship effect size and significance*
Sars and Minnen (2015)	Attitudes towards exposure scale, including 'Willingness' regarding use, beliefs about 'Treatment Credibility' and 'Personal Preference' of exposure subscales	Self-reported frequency (on a four-point Likert scale) of varying exposure techniques used for treatment of anxiety conditions. Techniques included therapist-directed in vivo exposure, introceptive exposure and exposure-based homework.	<p>Spearman rank correlations determining association between therapist attitudes towards exposure and use of exposure techniques.</p> <p>Results on this table represent associations between therapists' exposure attitudes and use of therapist-directed in vivo exposure specifically.</p>	<p><u>Key findings – Use of therapist-directed in vivo exposure in treatment of:</u></p> <p><u>Social Anxiety</u> Willingness: 0.34[‡], p<0.001 Treatment Credibility: 0.18[‡], p<0.001 Personal Preference: 0.25[‡], p<0.001</p> <p><u>(Specific) Phobia</u> Willingness: 0.37[‡], p<0.001 Treatment Credibility: 0.20[‡], p<0.001 Personal Preference: 0.24[‡], p<0.001</p> <p><u>OCD</u> Willingness: 0.29[‡], p<0.001 Treatment Credibility: 0.20[‡], p<0.001 Personal Preference: 0.23[‡], p<0.001</p> <p><u>Panic</u> Willingness: 0.30[‡], p<0.001 Treatment Credibility: 0.25[‡], p<0.001 Personal Preference: 0.25[‡], p<0.001</p>

Paper	Evidence-Based Practice attitude / belief measures	Evidence-Based Practice usage / adherence measures	Statistical analysis	Relationship effect size and significance*
Whiteside, Deacon, Benito, and Stewart (2016)	TBES total	Self-reported usage and frequency (on a four-point Likert scale) of CBT techniques, including exposure	Logistic regression predicting dichotomous use of exposure (yes/no) and linear regression predicting use of exposure as proportion of total technique usage	<u>Logistic regression</u> Exposure (yes/no): -0.15[†], p<0.001 <u>Linear regression</u> Exposure continuous: -0.52, p<0.001
Wiltsey Stirman et al. [§] (2015)	EBPAS Requirements EBPAS Appeal EBPAS Openness EBPAS Divergence	Therapist fidelity to CBT protocols two years post-training ascertained via coded interviews	Hierarchical regression assessing predictors of fidelity-consistent CBT protocol modifications	EBPAS Requirements: 0.17, p=NS EBPAS Appeal: 0.16, p=NS EBPAS Openness: 0.26, p=0.051 EBPAS Divergence 0.10, p=NS

Key: BASS=Beliefs About Session Structure scale, CBT=Cognitive Behavioural Therapy, CDAQ=Clinician Demographics and Attitudes Questionnaire, CPT=Cognitive Processing Therapy, CRA=Community Reinforcement Approach, EBP=Evidence-Based Practice, EPBAS=Evidence-Based Practice Attitude Scale, ITAY=Identification and Treatment of Anxious Youth, MPAS=Modified Practice Attitudes Scale, NACS=Negative Attitudes towards CBT Scale, NR=Not Reported, NS=Not Significant, NSQ=National Survey Questionnaire, PE=Prolonged Exposure, PTSD=Post Traumatic Stress Disorder, SIT=Stress Inoculation Training, TBES=Therapist Beliefs about Exposure Scale, TF-CBT=Trauma-Focused Cognitive Behavioural Therapy, TMQ=Therapy Methods Questionnaire, TPC-FR=Therapy Procedures Checklist—Family Revised, TTS=Treatment Techniques Scale.

§ - Studies included in meta-analysis

* – Effect sizes reported are Pearson’s r unless otherwise stated. Emboldened results indicate a statistical significance at an alpha level of 0.05

† - Effect size reported is unstandardized regression coefficient (B)

‡ - Effect size reported is Spearman’s rho

Narrative Summary

This review aimed to investigate whether there is an association between CBT therapists' self-reported attitudes or beliefs regarding the nature of EBP and their usage of EBP CBT. Significant associations between therapists' attitudes or beliefs and CBT use were found in thirteen papers, nearly two-thirds of the total papers reviewed. Therapists' positive attitudes or beliefs towards evidence-based practice, including positive beliefs about treatment manuals and specific therapeutic techniques (e.g., exposure and cognitive restructuring), were associated with increased EBP CBT use (Gray et al., 2007; Kolko et al., 2009; Kraan et al., 2018; Pemberton et al., 2017; Sars & Minnen, 2015). Therapists' negative attitudes and beliefs towards CBT and towards specific techniques (e.g., exposure) were associated with reduced EBP CBT use (Kraan et al., 2018; Parker & Waller, 2017; Pittig et al., 2019; Reid et al., 2018; Whiteside et al., 2016). However, some attitude measures were not associated with EBP CBT use, such as the CDAQ, MPAS and EBPAS divergence and requirements subscales (Allen & Crosby, 2014; Becker-Haimes et al., 2017, 2019; Beidas et al., 2014, 2015, 2017; Czincz & Romano, 2013; Finley et al., 2018; Lewis & Simons, 2011; Wiltsey Stirman et al., 2015).

This review also aimed to investigate whether there are differences in the associations between attitudes/beliefs and EBP CBT use, depending on the type of attitude/belief or EBP CBT use measured. To compare the strengths of associations found, Pearson's *r* and Spearman's *rho* effect sizes were interpreted using Cohen's (1988) guidelines. An effect size of 0.1 was considered small, 0.3 medium and 0.5 large. Most significant effect sizes were revealed to be small (51.4%) or medium (31.4%). However, large effect sizes were found for the association between negative beliefs about exposure and the reduced use of exposure in CBT (Reid et al., 2018;

Whiteside et al., 2016). Large effect sizes were also found for the association between beliefs in the importance of cognitive restructuring and the use of cognitive therapy. Finally, large positive associations were found between therapists' perceived meaningfulness of key therapy techniques and their delivery (Kolko et al., 2009; Kraan et al., 2018). As suggested by Field and Gillett (2010), significant r family effect sizes have been compiled into a stem and leaf plot – see Table 6.

Table 6.

Stem and leaf plot detailing significant Pearson's r and Spearman's ρ effect sizes

Stem	Leaf	Interpretation
0.9	1*	Large
0.8	2*	
0.7		
0.6		
0.5	1, 9*	
0.4		Medium
0.3	0*, 1, 3, 3, 4*, 7*	
0.2	0, 0*, 0*, 1, 1, 2, 3, 3*, 4*, 5*, 5*, 5*, 7, 9*	
0.1	0, 8*	
0.0		Small
-0.1		
-0.2	1, 5*	
-0.3	4, 5, 5*	Medium
-0.4	1, 6	
-0.5	2, 2	Large

Key: Figures marked with * denote Spearman's ρ . All others are Pearson's r .

Meta-Analyses

Primary Meta-Analyses

An additional aim of the review was to determine the strength of the associations between attitudes/beliefs and EBP CBT use via meta-analytic techniques. To achieve this, two meta-analyses were conducted, investigating the link between EBPAS Appeal and Openness subscales and EBP CBT use. Seven studies were suitable for inclusion in each meta-analysis, with a combined sample size of 1420. Studies were selected according to their usage of EBPAS subscales and appropriate reported data (see Table 5). Becker-Haimes et al. (2019) was excluded as only unstandardized beta weights were reported. Standardised beta values were requested from the authors but not provided in time for inclusion. Becker-Haimes et al. (2017) reported regression models as a predictor of binary CBT use (yes or no) and continuous degree of CBT use. The continuous data were used within the meta-analysis as this was deemed a better representation of the aims of the review. Beidas et al. (2017) also reported two regression models, for therapists who did and did not participate in EBPAS initiatives. As both were deemed equally relevant, a mean of these outcomes was calculated and added to the meta-analysis (Borenstein et al., 2009).

The combined partial correlation effect size between EBPAS Appeal and EBP CBT use was $r = 0.09$ (95% confidence interval $[-0.04 - 0.22]$) and a two-tailed significance of $p = 0.09$. This indicates the lack of a statistically significant association between EBPAS Appeal and CBT use. The Q statistic was significant ($Q = 22.79$; $p < 0.01$), with the I^2 statistic (73.68%) indicating a moderate-to-high degree of true heterogeneity. See Figure 2 for a visual forest plot representation of these results.

The combined partial correlation effect size between EBPAS Openness and EBP CBT use was $r = 0.24$ (95% confidence interval [0.09 – 0.39]) and a two-tailed significance of $p < 0.01$. This indicates a small-to-medium but statistically significant association between EBPAS Openness and CBT. The Q statistic was significant ($Q = 55.30$; $p < 0.01$) and the I^2 statistic (89.15%) indicated a high degree of true heterogeneity. See Figure 3 for a visual forest plot representation of these results.

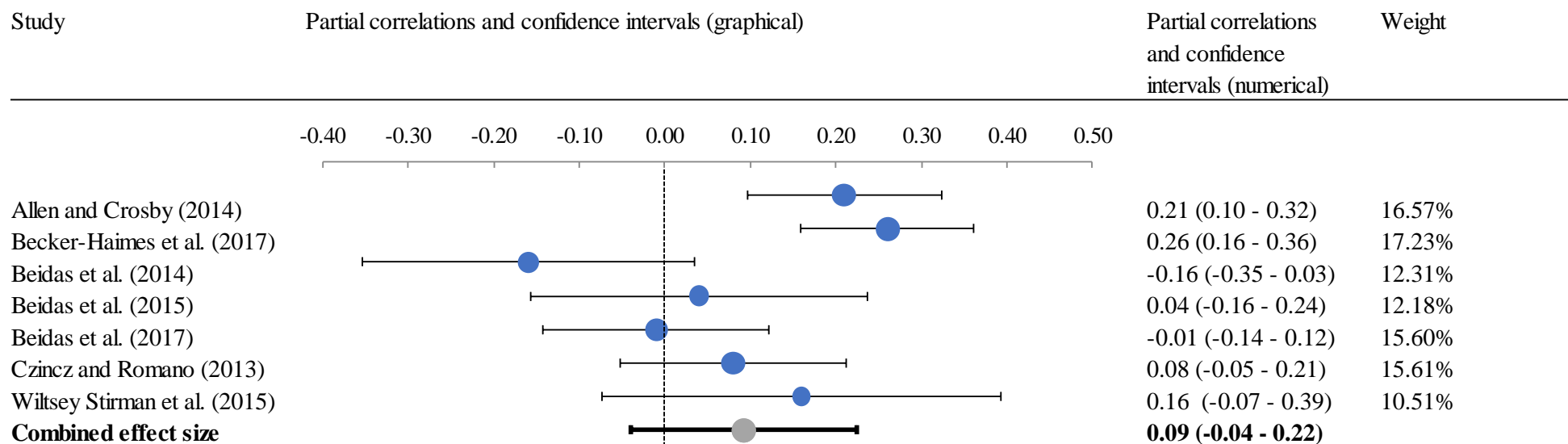


Figure 2. Forest plot depicting results of meta-analysis between EBPAS Appeal and EBP CBT use

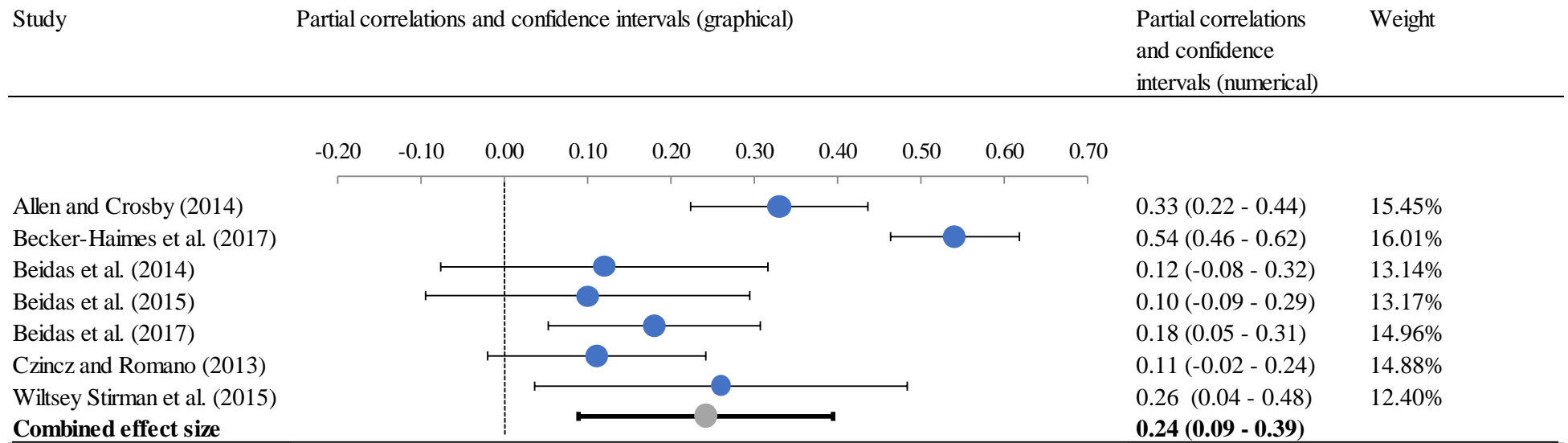


Figure 3. Forest plot depicting results of meta-analysis between EBPAS Openness and EBP CBT use

High levels of heterogeneity were reported in both meta-analyses. However, it should also be noted that the I^2 statistic can be biased in meta-analyses with small numbers of studies (Von Hippel, 2015). Therefore, the I^2 statistic in both meta-analyses might represent an over-estimation of heterogeneity.

Publication Bias Assessment

Funnel plots for the meta-analyses were prepared and inspected for evidence of publication bias. The EBPAS Appeal funnel plot (see Figure 4) indicated moderate symmetry. This conclusion was supported by the result of Egger's regression, which was non-significant ($t = -1.10, p = 0.32$), indicating a lack of publication bias.

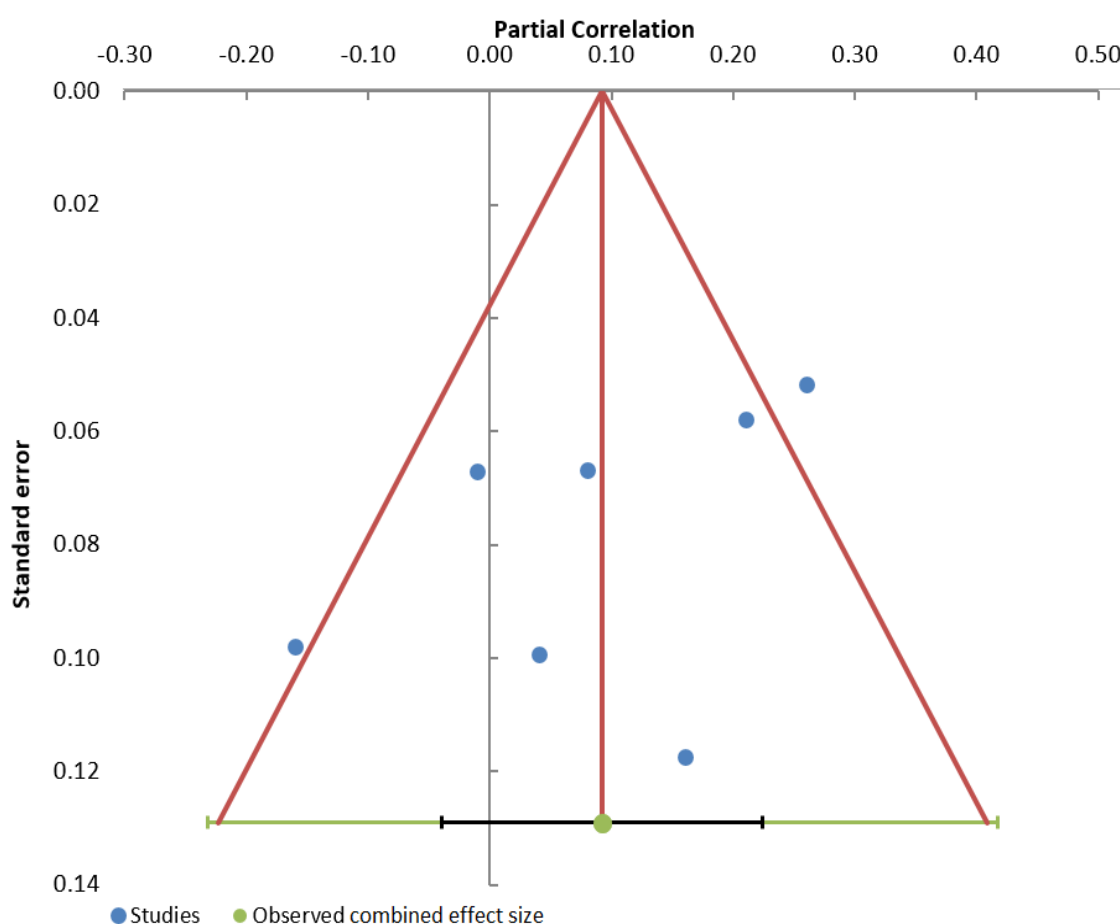


Figure 4. EBPAS Appeal meta-analysis funnel plot

The EBPAS Openness funnel plot (see Figure 5) indicated moderate symmetry with one outlier (Becker-Haimes et al., 2017). Egger's regression however, was non-significant ($t = -1.53$, $p = 0.19$), indicating a lack of publication bias (Egger et al., 1997).

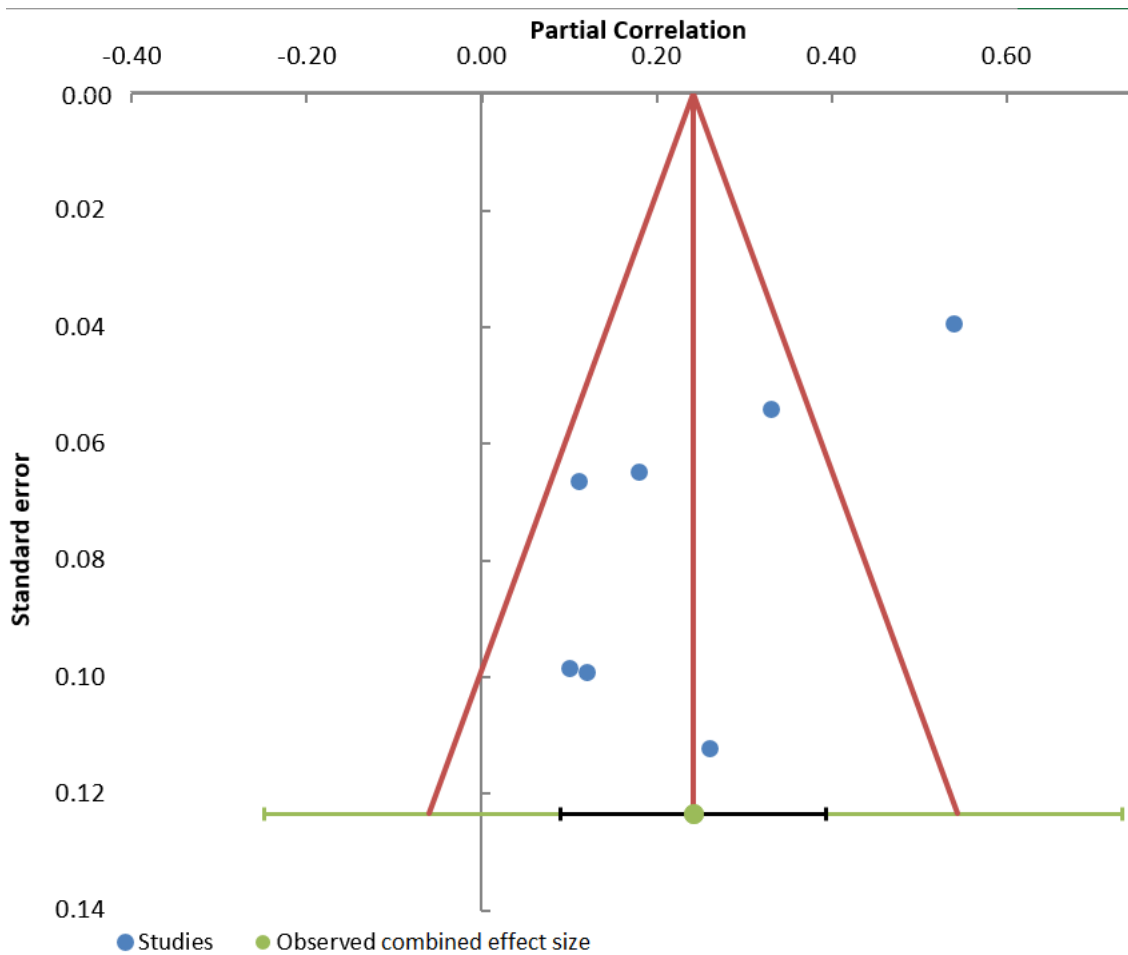


Figure 5. EBPAS Openness meta-analysis funnel plot

Secondary Sensitivity Analyses

Sensitivity analyses involve re-running meta-analyses following the removal of outlying studies. This allows for the robustness of findings to be investigated, as well as any key changes to findings to be observed (Borenstein et al., 2009). Within both EBPAS Appeal and Openness meta-analyses, three outlying studies were identified and removed in turn. Czincz and Romano (2013) was selected as the first outlier, due to its location. This study took place in Canada, as opposed to the rest of the studies in the meta-analysis, which took place in the United States. The second outlier was Wiltsey Stirman et al. (2015). This study recruited therapists working with both adults and children. The other studies in the meta-analysis recruited therapists working solely with children and/or youth. The final outlier was Becker-Haimes et al. (2017). This study focused on therapists' use of exposure techniques specifically, as opposed to CBT usage more generally. This study was also a statistical outlier in the EBPAS Openness meta-analysis, reporting the highest partial correlation and confidence intervals that did not overlap with any other studies (see Figure 3). See Tables 7 and 8 for full results of these sensitivity analyses.

Removal of Czincz and Romano (2013) and Wiltsey Stirman et al. (2015) did not have a major impact on findings, with EBPAS Appeal analyses still showing non-significant combined effect sizes. Removing Czincz and Romano (2013) and Wiltsey Stirman et al. (2015) for EBPAS Openness analyses showed small, significant combined effect sizes ($r = 0.27, p < 0.001$; $r = 0.24, p = 0.01$, respectively). Furthermore, Q-statistics remained significant and I^2 statistics showed a high degree of true heterogeneity despite the removal of these studies.

Removal of Becker-Haimes et al. (2017) from the EBPAS Appeal analysis did not change the non-significance of the combined effect size. However, it did remove a degree of heterogeneity from the analysis, with the Q-statistic still significant but I^2 indicating moderate true heterogeneity ($Q = 13.45$, $p_Q = 0.02$, $I^2 = 62.82\%$). Furthermore, following the removal of Becker-Haimes et al. (2017), the EBPAS Openness analysis retained its small significant effect size ($r = 0.19$, $p < 0.001$). Heterogeneity was also reduced, with the Q-statistic no longer registering as significant and I^2 indicating a low-to-moderate level of true heterogeneity ($Q = 9.66$, $p_Q = 0.09$, $I^2 = 48.23\%$). These results support the robustness of the primary meta-analyses findings. They also indicate that a degree of the heterogeneity found in the primary analyses might be accounted for by the inclusion of Becker-Haimes et al. (2017), with this study's focus on use of exposure, rather than general CBT use.

Table 7.

EBPAS Appeal sensitivity analyses

Removed study	Reason for removal	Remaining studies total sample size	Combined effect size (partial correlation)	95% confidence interval	Q-statistic	I ²
Czincz and Romano (2013)	Study location (Canada)	1189	$r = 0.09$	-0.07 – 0.26	22.25*	77.53%
Wiltsey Stirman et al., (2015)	Client group demographics (adults and children)	1343	$r = 0.08$	-0.07 – 0.25	22.70*	77.97%
Becker-Haimes et al., (2017)	Focus on exposure use	1085	$r = 0.06$	-0.08 – 0.19	13.45*	62.82%

Key: * = $p < 0.05$

Table 8.

EBPAS Openness sensitivity analyses

Removed study	Reason for removal	Remaining studies total sample size	Combined effect size (partial correlation)	95% confidence interval	Q-statistic	I ²
Czincz and Romano, 2013	Study location (Canada)	1189	$r = 0.27^*$	0.09 – 0.44	42.69*	88.29%
Wiltsey Stirman et al., 2015	Client group demographics (adults and children)	1343	$r = 0.24^*$	0.05 – 0.43	54.89*	90.89%
Becker-Haimes et al., (2017)	Focus on exposure use, statistical outlier	1085	$r = 0.19^*$	0.09 – 0.30	9.66	48.23%

Key: * = $p < 0.05$

Discussion

This review aimed to examine associations between therapists' attitudes and beliefs towards EBP and their use of EBP CBT. Therapists' attitudes/beliefs towards EBP were significantly associated with their use of EBP CBT in approximately two-thirds of studies. Most associations were small-to-medium in size. Positive EBP attitudes/beliefs were associated with increased use of EBP CBT. Negative EBP attitudes/beliefs were associated with reduced use of EBP CBT. Meta-analyses revealed that therapists who were more open to EBP were more likely to use EBP CBT, but not those who found EBP more appealing.

Comparison of Results to Previous Research

The finding that EBP attitudes and beliefs are associated with EBP use corresponds to previous research. Several studies have found similar associations between EBP attitudes or beliefs and EBP use for other healthcare professionals, such as nurses (Melnyk et al., 2008; Pereira et al., 2018; Stokke et al., 2014), physicians (Hong & Chen, 2019) physical therapists, pharmacists and other allied health professionals (Weng et al., 2013).

The current findings are also in line with several previous reviews and meta-analyses, which have established more general associations between attitudes and related behaviours (Bamberg & Möser, 2007; Glasman & Albarracín, 2006; Hines et al., 1987; Kim & Hunter, 1993; Kraus, 1995; Wallace et al., 2005). As with the current results, the strength of associations discovered by previous research were varied, both within and between reviews. Mean attitude-behaviour correlation coefficients in prior meta-analyses ranged from $r=0.35$ (Hines et al., 1987) to $r=0.79$ (Kim & Hunter, 1993). This suggests that many of the EBP attitude/belief and EBP use associations found in

the current study (see Table 6) are weaker than other types of attitude-behaviour association.

Some of the variation in the current results correspond to previous findings. For example, more general attitudes towards EBP, such as the Clinician Demographics and Attitudes Questionnaire (CDAQ), Modified Practice Attitudes Scale (MPAS), and majority of EBPAS subscales, were not significantly associated with EBP CBT use. However, studies investigating the beliefs, attitudes and use of more specific EBP techniques (such as exposure) mostly found more consistent and stronger associations. This corresponds to the results of Kraus' (1995) meta-analysis, in which stronger attitude-behaviour associations were found in studies where more specific measures of attitude and behaviour were used.

Contribution of Results to Psychological Theory

The results of this review support the theory that therapists' attitudes and beliefs towards EBP influence their delivery of EBP in routine practice (Shafran et al., 2009; Waller & Turner, 2016). For example, Waller and Turner (2016) have suggested that therapists might hold negative beliefs and attitudes towards anxiety-provoking CBT techniques, such as exposure, resulting in therapists avoiding the use of these techniques. This theory was supported by the current results, as studies were found in which therapists' negative beliefs about exposure were associated with their reduced use of exposure.

The current results also support broader psychological theories regarding behavioural influences. For example, the theoretical underpinnings of CBT note the impact of beliefs and emotions (which contribute to attitudes) on behaviour (Beck,

2011). The Theory of Planned Behaviour (TPB; Ajzen, 1991) also recognises the importance of attitudes in determining behaviour. The variation in attitude/belief and behaviour associations found in the current review might also be explained by these psychological theories, which note how modifying factors strengthen or attenuate attitude/belief-behaviour links. For example, CBT emphasises the importance of environmental factors (Beck, 2011). Additionally, the TPB describes the attitude-behaviour link as modest and indirect, emphasising the influence of other factors such as subjective norms and perceived behavioural control (Ajzen, 1991).

Although beyond the scope of the current review, consideration of other influencing factors might explain the inconsistency of EBP attitude/belief-behaviour associations. Previous research has indicated that openness to EBP is associated with workplace factors, such as provision of sufficient resources and workload demands, as well as personal factors, such as length of professional tenure (James et al., 2019; Magidson et al., 2018; Wiltsey Stirman et al., 2013). These external and interpersonal factors might provide insight into the contexts in which EBP openness best translates into EBP use; for example, workplaces where therapists have shorter tenures, are not over-burdened with workload and are supported and resourced to engage in EBP. Such differences in interpersonal and external factors might explain Beidas et al.'s (2017) finding, where EBP openness and EBP use were associated for therapists participating in city-sponsored EBP initiatives, but the same association was not found for therapists outside of these initiatives.

The association between openness to EBP and EBP use, but not appeal of EBP with EBP use, is not clearly explained by the above psychological theories, as presumably similar moderating factors would be present in studies measuring both of

these concepts. Aarons et al. (2012) found these concepts to be moderately to strongly associated, leading them to theorise that openness to EBP might take place within the context of finding EBP intuitively appealing. If this were true, we might expect both concepts to show significant associations with EBP use. However, this was not the case in our current findings.

Limitations

The results of this review must be considered in light of its limitations. The meta-analyses were conducted on a small number of studies, which might have reduced the likelihood of finding small but significant effects. Within the meta-analyses, significant heterogeneity was found, which could not be fully accounted for.

The review itself might have been biased due to the inclusion of only English-language articles, with several articles published in other languages excluded early in the process. Previous research has indicated that exclusion of non-English language studies can impact overall results of meta-analyses (Jüni et al., 2002). Also, the exclusion of the ‘grey literature’ within this review was used as a form of quality control. However, this might have subjected the results of the review to the risk of publication bias, as null findings are less likely to become published (Kühberger et al., 2014)

The quality of included studies is also a limitation. According to the adapted criteria of O’Connor et al. (2015), fewer than half the included studies were rated as ‘good’ quality, and none as were rated ‘excellent’ quality. Common quality limitations of studies included a lack of clarity as to whether the studies were sufficiently powered, suggesting some effects might have gone undetected. Also, there was a frequent lack of

clarity over whether the study participants were representative of the wider population. For example, this review did not limit inclusion of papers to those in which participants explicitly met a minimum CBT training or competency standard. Furthermore, many studies did not explicitly state the level of training or qualification in CBT that recruited participants had obtained. Therefore, studies might have recruited participants not representative of qualified CBT therapists in general. This brings into question whether the results of the review are generalisable to broader settings. The question of generalisability of findings is also raised by the fact that half of the studies were conducted in the United States of America, and over half on therapists working with youth or child populations.

Directions of Future Research

Although results indicated a relationship between EBP attitude/behaviour and EBP use in the majority of studies, this review investigated these relationships solely within the context of CBT. It would be valuable to see whether the relationship between attitude/belief regarding therapy and use of therapy is similar with other evidence-based approaches.

Given the hypothesised importance of modifying variables in the association between EBP attitude/behaviour and EBP use, further investigation into these variables might also be valuable. Investigating EBP attitudes/beliefs within the context of certain interpersonal, workplace or social factors might help shed light into why certain attitudes or beliefs are associated with EBP use in some cases and not others. For example, Becker-Haimes et al. (2019) have investigated the link between EBP attitudes and EBP use within different workplace cultures. Further use of similar approaches or

pathway analysis techniques could provide more insight into the interaction of different levels of factors, leading to greater EBP use.

The value of looking at attitudes/beliefs and use of specific techniques, such as exposure, has been highlighted by this review. In addition to considering attitudes towards EBP generally, qualitative research might provide a rich and nuanced understanding as to why some therapists avoid certain elements of EBP, or why others hold positive beliefs about therapy techniques despite their challenging nature. This research could then be used to challenge negative attitudes/beliefs and promote positive attitude/beliefs with greater specificity within training, which would hopefully lead to increased use of the targeted EBP elements.

Finally, although this review has considered attitudes and beliefs of therapists with regards to EBP, it should be noted that EBP should also incorporate service user choice (Sackett et al., 2000). Thus, service users' beliefs, as well as those of therapists, are important to ascertain in relation to EBP. Furthermore, in attempting to promote service users' interests, therapists might make clinical decisions based on their perceptions of service users' preferences. In other words, therapists might hold positive attitudes towards EBP, but avoiding using EBP techniques, if they perceive that service users might view those techniques negatively. Therefore, it would also be valuable to investigate whether therapists are able to accurately perceive service users' beliefs about therapy, or whether they are making incorrect assumptions about service users' beliefs.

Clinical Implications

The link between EBP attitudes or beliefs and EBP CBT use is of interest to services seeking to promote EBP CBT delivery. The results indicate the value in promoting positive beliefs and attitudes regarding EBP, such as openness to EBP.

Furthermore, therapists' negative beliefs about EBP should be challenged. For example, Deacon et al. (2013) revealed that therapists can hold beliefs that using exposure damages the therapeutic relationship and is unacceptably aversive to the client. This belief can be challenged by directing therapists to research indicating that service users' display a preference for exposure-based therapy, contrary to therapists' avoidance of this technique (Becker et al., 2004, 2007, 2009; Hipol & Deacon, 2013).

Promotion of positive EBP attitudes and challenging of negative EBP beliefs should form a key part of initial therapist and clinical psychology training. Therapist training programmes should include both didactic and practical teaching on EBP, as these methods have previously been associated with positive attitudes towards EBP (Karekla et al., 2004). Additionally, training and workshops should also be provided to promote beneficial attitudes and beliefs towards EBP amongst qualified therapists. Different methods of training, such as didactic teaching and technology-based training, have shown beneficial outcomes regarding therapists' EBP-related beliefs and attitudes (Harned et al., 2014; van den Berg et al., 2016; Waller et al., 2016). However, Beidas and Kendall (2010) have recommended that active learning should also occur within training to maximise the chance of behavioural, as well as attitudinal, change amongst trainees. This includes the use of modelling and practice of techniques (using role-play, for example), interaction between group members and reflection on activities. They also recommend that training considers individual therapist and client variables, specific to the current clinical setting. For example, trainers should investigate and respond adaptively to therapists' orientation and experience, prior attitudes regarding EBP and beliefs regarding the viability of EBP for their client group. Finally, ongoing supervision following training is also recommended to promote sustained attitudinal and behavioural change towards increased EBP use.

Although training has been associated with improvements in therapists' beliefs and attitudes towards specific elements of EBP, such as exposure (van den Berg et al., 2016; Waller et al., 2016), it is unclear how effectively training produces lasting change in general attitudes towards EBP. For example, Edmunds et al. (2014) discovered a positive impact of training on clinicians' openness to EBP. However, this improvement was not sustained at two-year follow-up. An alternative approach to promoting EBP openness in services, would be for service providers to target recruitment of clinicians showing evidence of openness to EBP. Evidence of openness to EBP in those applying for positions could be assessed via application forms or interview processes. Given the lack of association between EBP appeal and EBP use, the degree to which EBP appeals to individuals should not be used as a specific focus for training or a deciding factor when recruiting new employees.

Conclusion

Therapists' attitudes and beliefs towards EBP were associated with their use of EBP CBT. Therefore, service providers seeking to promote EBP CBT might benefit from fostering positive attitudes towards EBP, such as openness to EBP, and challenging negative beliefs, such as concerns over exposure. It should be noted that EBP attitudes and EBP CBT use were not associated in all cases. For example, no link was found between EBP appeal and EBP use. Associations between EBP attitude or belief and EBP use should also be considered within the context of other moderating factors, such as interpersonal variables or organisational context.

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Appendix A – PROSPERO Protocol

PROSPERO
International prospective register of systematic reviews


National Institute for
Health Research

UNIVERSITY of York
Centre for Reviews and Dissemination

Systematic review

1. * Review title.

Give the working title of the review, for example the one used for obtaining funding. Ideally the title should state succinctly the interventions or exposures being reviewed and the associated health or social problems. Where appropriate, the title should use the PI(E)COS structure to contain information on the Participants, Intervention (or Exposure) and Comparison groups, the Outcomes to be measured and Study designs to be included.

Association between therapists' attitudes towards and utilisation of evidence-based Cognitive Behavioural Therapy: a review and meta-analyses

2. Original language title.

For reviews in languages other than English, this field should be used to enter the title in the language of the review. This will be displayed together with the English language title.

3. * Anticipated or actual start date.

Give the date when the systematic review commenced, or is expected to commence.

01/11/2019

4. * Anticipated completion date.

Give the date by which the review is expected to be completed.

31/03/2020

5. * Stage of review at time of this submission.

Indicate the stage of progress of the review by ticking the relevant Started and Completed boxes. Additional information may be added in the free text box provided.

Please note: Reviews that have progressed beyond the point of completing data extraction at the time of initial registration are not eligible for inclusion in PROSPERO. Should evidence of incorrect status and/or completion date being supplied at the time of submission come to light, the content of the PROSPERO record will be removed leaving only the title and named contact details and a statement that inaccuracies in the stage of the review date had been identified.

This field should be updated when any amendments are made to a published record and on completion and publication of the review. If this field was pre-populated from the initial screening questions then you are not able to edit it until the record is published.

The review has not yet started: No

PROSPERO
International prospective register of systematic reviews



Review stage	Started	Completed
Preliminary searches	Yes	Yes
Piloting of the study selection process	Yes	Yes
Formal screening of search results against eligibility criteria	Yes	Yes
Data extraction	Yes	Yes
Risk of bias (quality) assessment	Yes	Yes
Data analysis	Yes	Yes

Provide any other relevant information about the stage of the review here (e.g. Funded proposal, protocol not yet finalised).

6. * Named contact.

The named contact acts as the guarantor for the accuracy of the information presented in the register record.

Ian Johnson

Email salutation (e.g. "Dr Smith" or "Joanne") for correspondence:

Ian

7. * Named contact email.

Give the electronic mail address of the named contact.

ijohnson1@sheffield.ac.uk

8. Named contact address

Give the full postal address for the named contact.

9. Named contact phone number.

Give the telephone number for the named contact, including international dialling code.

10. * Organisational affiliation of the review.

Full title of the organisational affiliations for this review and website address if available. This field may be completed as 'None' if the review is not affiliated to any organisation.

University of Sheffield, Clinical Psychology Unit

Organisation web address:

<https://www.sheffield.ac.uk/clinicalpsychology>

11. * Review team members and their organisational affiliations.

Give the personal details and the organisational affiliations of each member of the review team. Affiliation

refers to groups or organisations to which review team members belong. **NOTE: email and country are now mandatory fields for each person.**

Mr Ian Johnson. University of Sheffield

12. * Funding sources/sponsors.

Give details of the individuals, organizations, groups or other legal entities who take responsibility for initiating, managing, sponsoring and/or financing the review. Include any unique identification numbers assigned to the review by the individuals or bodies listed.

This review is being completed as part of a doctorate of clinical psychology at the University of Sheffield. The doctorate is being funded by the Sheffield Health and Social Care National Health Service Trust.

Grant number(s)

13. * Conflicts of interest.

List any conditions that could lead to actual or perceived undue influence on judgements concerning the main topic investigated in the review.

None

14. Collaborators.

Give the name and affiliation of any individuals or organisations who are working on the review but who are not listed as review team members. **NOTE: email and country are now mandatory fields for each person.**

Ms Jess Furlong-Silva. University of Sheffield
Professor Glenn Waller. University of Sheffield

15. * Review question.

State the question(s) to be addressed by the review, clearly and precisely. Review questions may be specific or broad. It may be appropriate to break very broad questions down into a series of related more specific questions. Questions may be framed or refined using PICO where relevant.

Is there a link between clinicians' self-reported beliefs or attitudes towards evidence-based practice and their utilisation of or adherence to CBT evidence-based practice? If so, which beliefs or attitudes predict or correlate most strongly with higher utilisation?

16. * Searches.

State the sources that will be searched. Give the search dates, and any restrictions (e.g. language or publication period). Do NOT enter the full search strategy (it may be provided as a link or attachment.)

MEDLINE, PsycINFO and Scopus databases will be searched on 1/11/19. No date restrictions applied, any articles prior to 1/11/19 to be included. Articles must be published in English. Four categories of search terms are used, those pertaining to a) beliefs / attitudes, b) the evidence-base, c) Cognitive Behavioural Therapy (CBT) and d) therapists / clinicians.

17. URL to search strategy.

Give a link to a published pdf/word document detailing either the search strategy or an example of a search strategy for a specific database if available (including the keywords that will be used in the search strategies), or upload your search strategy. Do NOT provide links to your search results.

https://www.crd.york.ac.uk/PROSPEROFILES/156990_STRATEGY_20191102.pdf

Alternatively, upload your search strategy to CRD in pdf format. Please note that by doing so you are consenting to the file being made publicly accessible.

Do not make this file publicly available until the review is complete

18. * Condition or domain being studied.

Give a short description of the disease, condition or healthcare domain being studied. This could include health and wellbeing outcomes.

Any condition or healthcare domain where Cognitive Behavioural Therapy can be applied as an evidence based treatment.

19. * Participants/population.

Give summary criteria for the participants or populations being studied by the review. The preferred format includes details of both inclusion and exclusion criteria.

Inclusion criteria: Studies must include data from practitioners of Cognitive Behavioural Therapy (e.g. clinicians, therapists, clinical psychologists, healthcare workers). Within studies, therapists must be recruited from professional contexts in which they regularly work with individuals with mental health difficulties (e.g. private practice, community mental health teams, mental health clinicians within schools). Self-identified therapists from a number of professional backgrounds are permitted. Exclusion criteria: Participants are not specified or self-identified as practitioners of Cognitive Behavioural Therapy or recruited from professional contexts involving regular work with individuals with mental health difficulties. No exclusion criteria applied on the basis of age, or length/type of therapy training are specified.

20. * Intervention(s), exposure(s).

Give full and clear descriptions or definitions of the nature of the interventions or the exposures to be reviewed.

The intervention must be an evidence-based psychological intervention involving cognitive behavioural therapy.

21. * Comparator(s)/control.

Where relevant, give details of the alternatives against which the main subject/topic of the review will be compared (e.g. another intervention or a non-exposed control group). The preferred format includes details of both inclusion and exclusion criteria.

A control group is not required for articles to be included within the review. However, some articles may report on groups of clinicians who display no or low utilisation of evidence-based cognitive behavioural intervention, in comparison to (high) utilisers.

22. * Types of study to be included.

Give details of the types of study (study designs) eligible for inclusion in the review. If there are no restrictions on the types of study design eligible for inclusion, or certain study types are excluded, this should be stated. The preferred format includes details of both inclusion and exclusion criteria.

Inclusion Criteria:

-Published studies

-English Articles

-Studies including quantitative data on therapists' attitudes or subjective beliefs towards evidence-based practice (EBP), a specific EBP, or element of EBP

-EBP attitude/belief measures regard therapists' appraisal of EBPs' subjective qualities, not objective knowledge of EBPs and their components or therapists' own skills/competency in applying EBPs.

-Self-identified therapists are recruited from professional contexts in which they regularly work with individuals with mental health difficulties..

-Studies include quantitative measures of therapists' reported implementation/adherence/utilisation of a Cognitive Behavioural Therapy (CBT) EBP within actual clinical practice and an evidence-based context (e.g. use of CBT for anxiety in adults)

-Studies must use and report quantitative data linking therapists' EBP attitudes or beliefs to their reported utilisation, implementation or adherence to EBP.

Exclusion Criteria:

-The grey literature (e.g dissertation abstracts)-Articles after 01/11/19 (date of search).

-Multiple EBPs, including non-CBT EBPs, are reported on but not separated within the analysis.

23. Context.

Give summary details of the setting and other relevant characteristics which help define the inclusion or exclusion criteria.

Studies may investigate evidence-based practice in general (EBP), a specific EBP (e.g. Trauma-Focused CBT) or element of EBP (e.g. use of exposure within CBT).

Examples of EBP attitude/belief measures focusing on therapists' appraisal of EBPs and their subjective qualities include therapists' beliefs about EBPs importance, suitability, pros and cons of utilisation, qualities of the EBP that are facilitators or barriers to implementation etc..

Measures focusing on therapists' beliefs regarding whether various approaches are evidence-based or not or which components comprise of different EBPs are considered objective knowledge measures and not included.

Measures of non-usage of EBP or alternatives to EBP are not considered suitable for the review.

Measures of reported intention to implement EBT or hypothetical adoption of EBP in response to vignettes are not considered suitable, as they do not reflect self-reported usage in actual clinical practice.

24. * Main outcome(s).

Give the pre-specified main (most important) outcomes of the review, including details of how the outcome is defined and measured and when these measurement are made, if these are part of the review inclusion criteria.

Articles must include reported, quantitative measures of clinicians' attitudes or beliefs regarding evidence-based practice or specific elements of EBP (e.g. use of exposure within CBT). Studies must use and report quantitative data linking this to clinicians' reported utilisation, implementation or adherence of EBP (e.g. correlations, prediction of group membership etc.)

*** Measures of effect**

Please specify the effect measure(s) for you main outcome(s) e.g. relative risks, odds ratios, risk difference, and/or 'number needed to treat.

Data at all time-points will be considered (e.g. the impact of EBP attitudes on utilisation pre- and post-training). However, it is anticipated that the majority of research will link EBP attitudes / beliefs to utilisation at a single time point. Effect measures are anticipated to involve correlation between attitudes and utilisation, prediction of utilisation from attitudes and potentially group comparison analyses (e.g. in the instance of a non-utilising comparison group).

25. * Additional outcome(s).

List the pre-specified additional outcomes of the review, with a similar level of detail to that required for main outcomes. Where there are no additional outcomes please state 'None' or 'Not applicable' as appropriate to the review

None.

*** Measures of effect**

Please specify the effect measure(s) for you additional outcome(s) e.g. relative risks, odds ratios, risk difference, and/or 'number needed to treat.

Not applicable.

26. * Data extraction (selection and coding).

Describe how studies will be selected for inclusion. State what data will be extracted or obtained. State how this will be done and recorded.

Titles and/or abstracts of studies retrieved using the search strategy and from additional sources (i.e. 'fingertip searching' of reference and citation lists of relevant studies). Studies will be excluded on the basis of the inclusion/exclusion criteria initially by title. The abstracts of all studies not excluded at the title stage will be reviewed and further exclusions made. Full text of the remaining studies will then be retrieved and reviewed, with further exclusions based on inclusion/exclusion criteria being made. This process will be completed solely by the primary study author. Data from the studies will be extracted in a standardised format. Extracted information will be used to assess study quality and for evidence synthesis. Extracted information will include study setting (location and professional context), participant demographics, study

aims, hypotheses and methodology, study methodology; recruitment and study completion rates, details of the EBP attitude/belief measure, details of the EBP utilisation measure, details of the analysis linking the two measures (e.g. regressions), data pertaining to the analyses including type of effect sizes, magnitude of effect sizes, significance of analyses, information for assessment of the risk of bias and power calculations.

27. * Risk of bias (quality) assessment.

Describe the method of assessing risk of bias or quality assessment. State which characteristics of the studies will be assessed and any formal risk of bias tools that will be used.

The Downs and Black quality tool will be used to assess quality of articles chosen, which will inform interpretation of results.

Quality assessment will be completed by the primary author, with an additional reviewer assessing 20% of the identified studies for comparison and to establish inter-rater reliability. Quality ratings will be compared for reliability and discrepancies discussed and resolved.

28. * Strategy for data synthesis.

Provide details of the planned synthesis including a rationale for the methods selected. This **must not be generic text** but should be **specific to your review** and describe how the proposed analysis will be applied to your data.

A narrative synthesis of the findings from the included studies will be provided, structured around the degree to which Evidence Based Practice (EBP) attitude/belief measures are linked to (e.g. correlate with or predict) Cognitive Behavioural Therapy EBP utilisation/adherence. Specific attention will be paid to the consistency of the link and effect size of similar measures across different studies, as well as comparisons regarding data from different types of attitude/belief measures and/or CBT methodologies/techniques. Summaries of these effects will be reported via their effect size and significance. Where possible effect sizes will be converted into the same units (Pearson's r), aiding comparisons across studies.

Initial scoping searches revealed a number of studies measuring EBP attitudes using the Evidence-based Practice Attitude Scale (EBPAS). Therefore it is anticipated there will be enough data to complete a meta-analysis on a subset of the results studies, focusing on the results of the EBPAS Openness subscale. A random-effects meta-regression will be used on all data which can be converted to an equivalent effect size (e.g. r). Regression models will not be required to include the same co-variants in reported models across studies and thus a partial correlation meta-regression will be applied to account for this. Heterogeneity will be assessed using both the Q-test and the I^2 statistic. An I^2 value greater than 75% will be considered indicative of substantial heterogeneity. Subgroup analysis will be carried out to investigate substantial heterogeneity. Evidence of publication bias will be examined using a forest plot and Egger's test. The online statistical software Meta Essentials will be used to carry out the meta-regression.

29. * Analysis of subgroups or subsets.

State any planned investigation of 'subgroups'. Be clear and specific about which type of study or participant will be included in each group or covariate investigated. State the planned analytic approach.

If required, subgroup analysis will be carried out to investigate significant heterogeneity, dividing subgroups according to key demographic differences, for example, therapist client group, study location etc.

30. * Type and method of review.

Select the type of review and the review method from the lists below. Select the health area(s) of interest for your review.

Type of review

Cost effectiveness
No

Diagnostic
No

Epidemiologic
No

Individual patient data (IPD) meta-analysis
No

Intervention
No

Meta-analysis
Yes

Methodology
No

Narrative synthesis
Yes

Network meta-analysis
No

Pre-clinical
No

Prevention
No

Prognostic
No

Prospective meta-analysis (PMA)
No

Review of reviews
No

Service delivery
Yes

Synthesis of qualitative studies
No

Systematic review
Yes

Other
No

Health area of the review

Alcohol/substance misuse/abuse
No

Blood and immune system

No
Cancer
No
Cardiovascular
No
Care of the elderly
No
Child health
No
Complementary therapies
No
Crime and justice
No
Dental
No
Digestive system
No
Ear, nose and throat
No
Education
No
Endocrine and metabolic disorders
No
Eye disorders
No
General interest
No
Genetics
No
Health inequalities/health equity
No
Infections and infestations
No
International development
No
Mental health and behavioural conditions
Yes
Musculoskeletal
No
Neurological
No
Nursing
No
Obstetrics and gynaecology
No
Oral health
No
Palliative care
No
Perioperative care
No

PROSPERO
International prospective register of systematic reviews

Physiotherapy
No
Pregnancy and childbirth
No
Public health (including social determinants of health)
No
Rehabilitation
No
Respiratory disorders
No
Service delivery
Yes
Skin disorders
No
Social care
No
Surgery
No
Tropical Medicine
No
Urological
No
Wounds, injuries and accidents
No
Violence and abuse
No

31. Language.

Select each language individually to add it to the list below, use the bin icon to remove any added in error.

English

There is not an English language summary

32. * Country.

Select the country in which the review is being carried out from the drop down list. For multi-national collaborations select all the countries involved.

England

33. Other registration details.

Give the name of any organisation where the systematic review title or protocol is registered (such as with The Campbell Collaboration, or The Joanna Briggs Institute) together with any unique identification number assigned. (N.B. Registration details for Cochrane protocols will be automatically entered). If extracted data will be stored and made available through a repository such as the Systematic Review Data Repository (SRDR), details and a link should be included here. If none, leave blank.

34. Reference and/or URL for published protocol.

Give the citation and link for the published protocol, if there is one

Give the link to the published protocol.

Alternatively, upload your published protocol to CRD in pdf format. Please note that by doing so you are consenting to the file being made publicly accessible.

No I do not make this file publicly available until the review is complete

Please note that the information required in the PROSPERO registration form must be completed in full even if access to a protocol is given.

35. Dissemination plans.

Give brief details of plans for communicating essential messages from the review to the appropriate audiences.

Completion of the review may involve seeking publication

Do you intend to publish the review on completion?

Yes

36. Keywords.

Give words or phrases that best describe the review. Separate keywords with a semicolon or new line. Keywords will help users find the review in the Register (the words do not appear in the public record but are included in searches). Be as specific and precise as possible. Avoid acronyms and abbreviations unless these are in wide use.

Evidence based practice

Therapists

Clinicians

Cognitive behavioural Therapy

Attitudes

Beliefs

37. Details of any existing review of the same topic by the same authors.

Give details of earlier versions of the systematic review if an update of an existing review is being registered, including full bibliographic reference if possible.

38. * Current review status.

Review status should be updated when the review is completed and when it is published. For new registrations the review must be Ongoing.

Please provide anticipated publication date

Review_Completed_not_published

39. Any additional information.

Provide any other information the review team feel is relevant to the registration of the review.

40. Details of final report/publication(s).

This field should be left empty until details of the completed review are available.

Give the link to the published review.

Appendix B – Search Strategy

Scopus

Search date: 01/11/2019

1. TITLE-ABS-KEY [article title, abstract, keywords]
(cognition* OR thought* OR belie* OR prefer* OR attitude*)
(3, 319, 213 results)
2. TITLE-ABS-KEY
(cbt OR "Cognitive Behavio* *Therap*" OR "Behavio* *Therap*")
(86, 240 results)
3. TITLE-ABS-KEY
("Evidence-base*" OR evidence OR ebt OR ebp OR "Empirically-supported treatment*" OR "Empirically supported treatment*" OR est)
(3, 021, 592 results)
4. TITLE-ABS-KEY
(psychologist* OR “*therapist*” OR practitioner* OR "Mental Health Worker*" OR clinician*)
(770, 553 results)

5. #1 AND #2 AND #3 AND #4

(TITLE-ABS-

KEY (cognition* OR thought* OR belie* OR prefer* OR attitude*))

AND (TITLE-ABS-KEY (cbt OR "Cognitive Behavior*

Therap" OR "Behavior* *Therap*")) AND (TITLE-ABS-

KEY ("Evidence-Base*" OR evidence OR ebt OR ebp OR "Empirically-

supported treatment*" OR "Empirically supported

treatment*" OR est)) AND (TITLE-ABS-

KEY (psychologist* OR *therapist* OR practitioner* OR "Mental Health

Worker*" OR clinician*))

(927 results)

Ovid MEDLINE and PsycINFO

Search date: 01/11/19

1. (Cognition* or Thought* or Belie* or Prefer* or Attitude*).ab. or (Cognition* or Thought* or Belie* or Prefer* or Attitude*).ti. or (Cognition* or Thought* or Belie* or Prefer* or Attitude*).kw. [.ti.=title, .ab.=abstract, .kw.=keyword heading]

(118, 774 results)

2. (CBT or "Cognitive Behavior* *Therap*" or "Behavior* *Therap*").ab. or (CBT or "Cognitive Behavior* *Therap*" or "Behavior* *Therap*").ti. or (CBT or "Cognitive Behavior* *Therap*" or "Behavior* *Therap*").kw.

(5, 983 results)

3. ("Evidence-Base*" or Evidence or EBT or EBP or "Empirically-supported treatment*" or "Empirically supported treatment*" or EST).ab. or ("Evidence-Base*" or Evidence or EBT or EBP or "Empirically-supported treatment*" or "Empirically supported treatment*" or EST).ti. or ("Evidence-Base*" or Evidence or EBT or EBP or "Empirically-supported treatment*" or "Empirically supported treatment*" or EST).kw.

(270, 893 results)

4. (Psychologist* or "*therapist*" or Practitioner* or "Mental Health Worker*" or Clinician*).ab. or (Psychologist* or "*therapist*" or Practitioner* or "Mental Health Worker*" or Clinician*).ti. or (Psychologist* or "*therapist*" or Practitioner* or "Mental Health Worker*" or Clinician*).kw.

(642, 973 results)

5. #1 AND #2 AND #3 AND #4

(678 results)

(558 results when deduplicated)

Appendix C - Downs and Black Quality Assessment Checklist

Checklist for measuring study quality

Reporting

1. Is the hypothesis/aim/objective of the study clearly described?

yes	1
no	0

2. Are the main outcomes to be measured clearly described in the Introduction or Methods section?

If the main outcomes are first mentioned in the Results section, the question should be answered no.

yes	1
no	0

3. Are the characteristics of the patients included in the study clearly described?

In cohort studies and trials, inclusion and/or exclusion criteria should be given. In case-control studies, a case-definition and the source for controls should be given.

yes	1
no	0

4. Are the interventions of interest clearly described?

Treatments and placebo (where relevant) that are to be compared should be clearly described.

yes	1
no	0

5. Are the distributions of principal confounders in each group of subjects to be compared clearly described?

A list of principal confounders is provided.

yes	2
partially	1
no	0

6. Are the main findings of the study clearly described?

Simple outcome data (including denominators and numerators) should be reported for all major findings so that the reader can check the major analyses and conclusions. (This question does not cover statistical tests which are considered below).

yes	1
no	0

7. Does the study provide estimates of the random variability in the data for the main outcomes?

In non normally distributed data the inter-quartile range of results should be reported. In normally distributed data the standard error, standard deviation or confidence intervals should be reported. If the distribution of the data is not described, it must be assumed that the estimates used were appropriate and the question should be answered yes.

yes	1
no	0

8. Have all important adverse events that may be a consequence of the intervention been reported?

This should be answered yes if the study demonstrates that there was a comprehensive attempt to measure adverse events. (A list of possible adverse events is provided).

yes	1
no	0

9. Have the characteristics of patients lost to follow-up been described?

This should be answered yes where there were no losses to follow-up or where losses to follow-up were so small that findings would be unaffected by their inclusion. This should be answered no where a study does not report the number of patients lost to follow-up.

yes	1
no	0

10. Have actual probability values been reported (e.g. 0.035 rather than <0.05) for the main outcomes except where the probability value is less than 0.001?

yes	1
no	0

External validity

All the following criteria attempt to address the representativeness of the findings of the study and whether they may be generalised to the population from which the study subjects were derived.

11. Were the subjects asked to participate in the study representative of the entire population from which they were recruited?

The study must identify the source population for patients and describe how the patients were selected. Patients would be representative if they comprised the entire source population, an unselected sample of consecutive patients, or a random sample. Random sampling is only feasible where a list of all members of the relevant

population exists. Where a study does not report the proportion of the source population from which the patients are derived, the question should be answered as unable to determine.

yes	1
no	0
unable to determine	0

12. *Were those subjects who were prepared to participate representative of the entire population from which they were recruited?*

The proportion of those asked who agreed should be stated. Validation that the sample was representative would include demonstrating that the distribution of the main confounding factors was the same in the study sample and the source population.

yes	1
no	0
unable to determine	0

13. *Were the staff, places, and facilities where the patients were treated, representative of the treatment the majority of patients receive?*

For the question to be answered yes the study should demonstrate that the intervention was representative of that in use in the source population. The question should be answered no if, for example, the intervention was undertaken in a specialist centre unrepresentative of the hospitals most of the source population would attend.

yes	1
no	0
unable to determine	0

Internal validity - bias

14. *Was an attempt made to blind study subjects to the intervention they have received?*

For studies where the patients would have no way of knowing which intervention they received, this should be answered yes.

yes	1
no	0
unable to determine	0

15. *Was an attempt made to blind those measuring the main outcomes of the intervention?*

yes	1
no	0
unable to determine	0

16. *If any of the results of the study were based on "data dredging", was this made clear?*

Any analyses that had not been planned at the outset of the study should be clearly indicated. If no retrospective unplanned subgroup analyses were reported, then answer yes.

yes	1
no	0
unable to determine	0

17. *In trials and cohort studies, do the analyses adjust for different lengths of follow-up of patients, or in case-control studies, is the time period between the intervention and outcome the same for cases and controls?*

Where follow-up was the same for all study patients the answer should yes. If different lengths of follow-up were adjusted for by, for example, survival analysis the answer should be yes. Studies where differences in follow-up are ignored should be answered no.

yes	1
no	0
unable to determine	0

18. *Were the statistical tests used to assess the main outcomes appropriate?*

The statistical techniques used must be appropriate to the data. For example non-parametric methods should be used for small sample sizes. Where little statistical analysis has been undertaken but where there is no evidence of bias, the question should be answered yes. If the distribution of the data (normal or not) is not described it must be assumed that the estimates used were appropriate and the question should be answered yes.

yes	1
no	0
unable to determine	0

19. *Was compliance with the intervention/s reliable?*

Where there was non compliance with the allocated treatment or where there was contamination of one group, the question should be answered no. For studies where the effect of any misclassification was likely to bias any association to the null, the question should be answered yes.

yes	1
no	0
unable to determine	0

20. *Were the main outcome measures used accurate (valid and reliable)?*

For studies where the outcome measures are clearly described, the question should be answered yes. For studies which refer to other work or that demonstrates the outcome measures are accurate, the question should be answered as yes.

yes	1
no	0
unable to determine	0

Internal validity - confounding (selection bias)

21. *Were the patients in different intervention groups (trials and cohort studies) or were the cases and controls (case-control studies) recruited from the same population?*

For example, patients for all comparison groups should be selected from the same hospital. The question should be answered unable to determine for cohort and case-control studies where there is no information concerning the source of patients included in the study.

yes	1
no	0
unable to determine	0

22. *Were study subjects in different intervention groups (trials and cohort studies) or were the cases and controls (case-control studies) recruited over the same period of time?*

For a study which does not specify the time period over which patients were recruited, the question should be answered as unable to determine.

yes	1
no	0
unable to determine	0

23. *Were study subjects randomised to intervention groups?*

Studies which state that subjects were randomised should be answered yes except where method of randomisation would not ensure random allocation. For example alternate allocation would score no because it is predictable.

yes	1
no	0
unable to determine	0

24. *Was the randomised intervention assignment concealed from both patients and health care staff until recruitment was complete and irrevocable?*

All non-randomised studies should be answered no. If assignment was concealed from patients but not from staff, it should be answered no.

yes	1
no	0
unable to determine	0

25. *Was there adequate adjustment for confounding in the analyses from which the main findings were drawn?*

This question should be answered no for trials if: the main conclusions of the study were based on analyses of treatment rather than intention to treat; the distribution of known confounders in the different treatment groups was not described; or the distribution of known confounders differed between the treatment groups but was not taken into account in the analyses. In non-randomised studies if the effect of the main confounders was not investigated or confounding was demonstrated but no adjustment was made in the final analyses the question should be answered as no.

yes	1
no	0
unable to determine	0

26. *Were losses of patients to follow-up taken into account?*

If the numbers of patients lost to follow-up are not reported, the question should be answered as unable to determine. If the proportion lost to follow-up was too small to affect the main findings, the question should be answered yes.

yes	1
no	0
unable to determine	0

Power

27. *Did the study have sufficient power to detect a clinically important effect where the probability value for a difference being due to chance is less than 5%?*

Sample sizes have been calculated to detect a difference of x% and y%.

	Size of smallest intervention group	
A	<n ₁	0
B	n ₁ -n ₂	1
C	n ₃ -n ₄	2
D	n ₅ -n ₆	3
E	n ₇ -n ₈	4
F	n ₈ +	5

Appendix D – Evidence-Based Practice Attitudes / Belief Measures

Measure	Description	Papers using measure	Reference(s)
Evidence-Based Practice Attitudes Scale (EBPAS)	A 15-item scale measuring mental health providers' attitudes towards EBP adoption. Four subscales measure intuitive 'Appeal' of EBP, likelihood of adopting EBP given 'Requirements' to do so, 'Openness' to new EBPs and 'Divergence' of current practice to EBP, inasmuch as research-based interventions are viewed as less clinically useful and important than clinical experience. Expanded 36- and 50-item versions of the scale have since been developed.	Allen and Crosby, 2014; Becker-Haimes et al., 2017, 2019; Beidas et al., 2014, 2015, 2017; Czincz and Romano, 2013; Gray et al., 2007; Pemberton et al., 2017; Wiltsey Stirman et al., 2015	Aarons, 2004; Aarons, Cafri, Lugo, and Sawitzky, 2012; Rye, Torres, Friborg, Skre, and Aarons, 2017
Beliefs About Session Structure Scale (BASS)	An eight-item measure investigating the degree to which participants believe treatment sessions with children experiencing trauma should be structured or directed. It contains a five-item 'Clinician-directed' subscale regarding beliefs about whether the clinician or child should direct treatment. A second, three-item 'Verbal capacity' subscale measures therapists' beliefs regarding children's capacity to discuss their traumatic experiences.	Allen and Crosby, 2014	Allen and Crosby, 2014

Measure	Description	Papers using measure	Reference(s)
Clinician Demographics and Attitudes Questionnaire (CDAQ)	A 15-item questionnaire assessing participants demographics, experience and attitudes towards EBP. Includes items on participants' 'Opinion' of (in support or not) and 'Confidence' in the efficacy of empirically supported treatments for youth anxiety. Also includes items on participants' 'motivation' to learn and use CBT for child anxiety and views on the 'Usefulness' of learning about this.	Beidas et al., 2014	Beidas, Barmish, and Kendall, 2009
Attitudes towards EBP scale and perceived barriers toward EBP scale	Two scales of four items each. The attitudes towards EBP scale assesses participants' views on the likelihood of EBP to improve quality of life for clients, EBP compatibility with client needs and advantageousness for clients, as well as EBP's fit with their preference for working style. The perceived barriers to EBP scale assesses participants' views on service users' likelihood to receive reimbursement for EBP treatment, ease of incorporating EBP into clinical work, likelihood of this causing complications in clinical work and concern about EBP raising potential risks for service users.	Finley et al., 2018	Finley et al., 2018

Measure	Description	Papers using measure	Reference(s)
National Survey Questionnaire (NSQ)	A 47-item measure of participants' experiences with and attitude towards treatment manuals. Includes items relating to participants' understanding of treatment manuals, views on the relation between treatment manuals and good clinical practice, effects of treatment manuals on improving outcomes and usefulness/appropriateness of treatment manuals within relevant client groups.	Kolko et al., 2009	Addis and Krasnow, 2000
The Modified Practice Attitudes Scale (MPAS)	An 8-item scale measuring participants' attitudes towards EBP in general. Based on the EBPAS, the MPAS differs through minimising references to manualised treatments within its items.	Lewis and Simons, 2011	Borntrager, Chorpita, Higa-McMillan, and Weisz, 2009
The Negative Attitudes towards CBT Scale (NACS)	A 16-item scale measuring the degree to which participants agree with a series of negative attitudes towards CBT. Items were identified from relevant literature, as well as clinician and patient online discussion forums	Parker and Waller, 2017	Parker and Waller, 2017

Measure	Description	Papers using measure	Reference(s)
Therapist Beliefs about Exposure Scale (TBES)	A 21-item questionnaire assessing participants' levels of agreement with various negative beliefs about exposure-based interventions	Pittig et al., 2019; Reid et al., 2018; Whiteside et al., 2016	Deacon et al., 2013
Attitudes towards exposure scale	A measure of participants' attitudes towards exposure. Items are scored on an eight-point agree-disagree Likert scale. Includes 11 items regarding participants' "Willingness" to use exposure techniques, four items on participants perception of the "Treatment Credibility" of exposure and five "Personal Preference" items, indicating participants affinity for using exposure.	Sars and Minnen, 2015	Sars and Minnen, 2015

Appendix E – Evidence-Based Practice Usage / Adherence Measures

Measure	Description	Paper(s) using measure	Reference(s)
Treatment Techniques Scale	A 24-item scale of common therapeutic techniques for the treatment abused and neglected children. Participants rate the likelihood of using each item in their practice. Items were identified via reviewing treatment manuals, books and articles	Allen and Crosby, 2014	Allen and Johnson, 2012
Therapy Procedures Checklist—Family Revised (TPC-FR)	A 57-item measure of therapeutic techniques for child/adolescent populations, including those specific to cognitive and behavioural theoretical domains. Participants indicate the frequency with which they use each technique.	Becker-Haimes et al., 2017, 2019; Beidas et al., 2015, 2017; Czincz and Romano, 2013; Kolko et al., 2009	Weersing, Weisz, and Donenberg, 2002
Identification and Treatment of Anxious Youth (ITAY)	A self-report measure using open and closed questions to assess rates and modalities of treatment use in primary treatment settings. Also assesses facilitators and barriers to treatment use.	Beidas et al., 2014	Benjamin, Beidas, Edmunds, Cohen, and Kendall, 2010

Measure	Description	Paper(s) using measure	Reference(s)
Therapy Methods Questionnaire (TMQ)	A 26-item scale asking participants to rate (0-100%) their frequency of usage and confidence in various therapy techniques in the treatment of anxiety. Items were identified from the literature and treatment manuals. The measure has four subscales: psychoeducation and general CBT techniques, cognitive techniques, behavioural techniques and non-CBT techniques	Parker and Waller, 2017	Parker and Waller, 2017

Part Two: Research Report

An Investigation into the Perceived Importance of Alliance and Adherence within Cognitive Behavioural Therapy: A Comparison of Service Users' and Therapists' Beliefs

Abstract

Objective: Alliance and adherence to therapeutic techniques are key elements of Cognitive Behavioural Therapy (CBT), but might have greater or lesser importance at different stages of therapy. Therapists' beliefs regarding the relative importance of alliance and adherence across CBT might impact the focus and outcome of therapy. This research aimed to investigate whether therapists hold similar beliefs to service users regarding the importance of alliance and adherence across CBT and whether therapists could accurately predict service users' beliefs. The roles of personal characteristics and experiences of CBT were also investigated.

Method: CBT therapists (n=103) and service users (n=181) who had previously had CBT rated the importance of alliance and adherence to CBT outcomes in early, mid and late therapy. Therapists also predicted service users' responses. Mann-Whitney U tests compared therapists' responses and therapists' predictions with service users' responses at each stage of therapy. Multiple linear regressions were also conducted to determine whether personal characteristics predicted therapists' responses, or whether experiences of CBT predicted service users' responses.

Results: Therapists rated alliance and adherence as more important than service users did at all stages of therapy, with the largest discrepancy for alliance in early therapy. Therapists accurately predicted service users' alliance importance ratings. However, therapists underestimated service users' adherence importance ratings for early and mid-therapy. More successful CBT experiences were associated with higher adherence importance ratings in service users. Older therapists rated adherence as less important. More empathetic and female therapists gave higher predictions for service user ratings of alliance importance.

Conclusion: This research indicated that therapists hold different beliefs regarding the importance of alliance and adherence in CBT to service users. The research also indicated that therapists hold inaccurate predictions regarding service users' beliefs about therapy, which could impact therapy delivery and outcomes. The accuracy of therapists' predictions, as well as the difference between therapists' and service users' beliefs, might be impacted by therapists' characteristics and service users' previous CBT experiences.

Practitioner Points:

- Therapists accurately predict how important alliance is to service users in CBT.
Therapists should continue prioritising alliance within CBT.
- Therapists underestimate how important adherence is to service users in CBT.
Therapists should adhere to techniques, especially early in therapy
- Therapists inaccurately predict service users' therapy-related beliefs. Therefore, therapists should ask service users about their therapy preferences, rather than assuming them.

Introduction

How Important is the Therapeutic Alliance?

Therapeutic alliance is a widely-researched common factor within psychological therapies. An influential conceptualisation of the “therapeutic” or “working alliance” (Bordin, 1979), consists of three components:

- a. Development of shared goals between therapist and service user.
- b. Agreement on tasks to reach these goals.
- c. An affective bond between therapist and service user, often involving trust, liking and understanding.

Alliance is recognised as being important for positive therapy outcomes, with Beck et al. (1979) describing the alliance as necessary but insufficient for clinical change. On average, clinicians estimate the alliance accounts for 34.6% of the variance in therapy outcomes (D’Souza Walsh et al., 2019).

In reviewing over 100 studies, Lambert and Barley (2001) concluded that 30% of improvement in psychotherapy patients was a function of common factors – those not related to specific therapeutic modalities. Common factors include the alliance, but also therapist and client factors (Wampold, 2015). Meta-analyses have estimated that alliance accounts for 5-7% of outcomes (Horvath & Symonds, 1991; Martin et al., 2000), which is substantially less than clinicians’ average estimate of 34.6%.

Alliance, Early Symptom Change and Outcomes in Cognitive Behavioural Therapy

The link between alliance and therapeutic outcome might be indirect and result from a third factor, such as early symptom improvement (Crits-Christoph, Gibbons, and

Hearon, 2006). There is evidence supporting this hypothesis within Cognitive Behavioural Therapy (CBT) research. For example, in CBT for eating disorders, early symptom improvement has been identified as a stronger predictor of therapy outcomes than early alliance (Agras et al., 2000; Graves et al., 2017; Raykos et al., 2014; Turner et al., 2015; Vall & Wade, 2015; Wilson et al., 2002)

Additionally, evidence that symptom improvement precedes alliance improvements has been observed in studies investigating CBT for eating disorders, depression and anxiety (Brown et al., 2013a; Graves et al., 2017; Lutz et al., 2013; Raykos et al., 2014; Tang & DeRubeis, 1999; Turner et al., 2015; Webb et al., 2011). Furthermore, alliance improvements, after early symptom improvement, might lead to additional symptom improvements later, as observed within a meta-analysis on CBT outcomes for eating disorders (Graves et al., 2017), as well as research on CBT for depression, where Tang and DeRubeis (1999) referred to it as an “upward spiral”.

The Role of Adherence in CBT

How can early symptom improvement, leading to subsequent alliance improvement and further positive therapy outcomes, be maximised? Are therapy techniques especially important early on to prompt symptom improvement?

Lambert and Barley (2001) have estimated that specific therapy techniques account for 15% of therapeutic outcomes. Additionally, use of specific techniques have been associated with positive outcomes in CBT (Bennett-Levy, 2003; Rees et al., 2005; Westra et al., 2007). Therefore, adherence to therapy techniques might be important in successful therapy. However, a meta-analysis failed to find a significant association between adherence and outcomes (Webb, DeRubeis, & Barber, 2010). In response, researchers have theorised a curvilinear relationship (Barber, 2009; Hogue et al., 2008),

whereby adherence that is too high (i.e., clinician inflexibility) or too low (i.e., absence of recommended techniques) can reduce positive outcomes.

Additionally, the results of Webb et al.'s (2010) meta-analysis revealed significant heterogeneity, indicating differences in underlying populations. Therefore, the mixed results might be a function of different adherence-outcome associations across different therapy models and stages of therapy. For instance, adherence might be especially important within early CBT. Although not always the case (Loeb et al., 2005), research focusing on the early stages of therapy within CBT has found positive adherence-outcome associations for depression (DeRubeis & Feeley, 1990; Feeley et al., 1999; Strunk et al., 2010), substance use (Hogue et al., 2008), panic disorder (Haug et al., 2015) and bulimia (Folke et al., 2017).

Alliance, however, might be especially important in later CBT. Findings for alliance-outcome associations in early CBT are mixed (Gaston et al., 1998; Hogue et al., 2006; Loeb et al., 2005; Waller, Evans, et al., 2012), although increases in later alliance-outcome association have been found in CBT for depression, social anxiety and panic disorder (Gaston et al., 1991; Haug et al., 2015; Weiss et al., 2014). Similarly, a meta-analysis by Horvath et al. (2011), found small-to-medium alliance-outcome associations in early and mid-therapy ($r = 0.25$) but this association was larger in late therapy ($r = 0.39$).

Therefore, adherence, symptom improvement and alliance might all interact, with early adherence-led outcomes potentially helping to build later trust in the therapist and therapy (Hill, 2005). This increased trust and improved alliance might lead to further symptom improvement in an 'upward spiral' (Tang & DeRubeis, 1999).

The Importance of Therapists' Beliefs and Their Impact on Therapy

In summary, alliance and adherence are both important for therapy outcomes. Therefore, both should be key foci within therapy. However, the aspects of therapy that therapists do prioritise is likely to be influenced by therapists' beliefs about the relative importance of therapy elements. For example, Kolko et al. (2009) discovered that CBT therapists who believed that exposure and cognitive restructuring were more important were more likely to use cognitive therapy and exposure techniques.

Therapists' beliefs about the importance of therapy elements might also impact therapy outcomes. For example, within CBT for anorexia nervosa, therapists expressed stronger beliefs that early alliance predicts later weight gain, despite contrary evidence (Brown et al., 2013a). This belief was associated with worse outcomes, possibly because it resulted in a greater focus on the alliance than on weight gain early in CBT (Brown et al., 2014). Additionally, negative beliefs about treatment manuals have been associated with worse outcomes in CBT for chronic fatigue syndrome (Wiborg et al., 2012).

Therapists' beliefs about the importance of adherence or alliance might lead them to prioritise one over the other. For example, in CBT for eating disorders, therapists' stronger beliefs that the therapeutic relationship drove outcomes was associated with a reduced use of evidence-based techniques (Mulken et al., 2018). Therapists might also prioritise some components over others if they believe them to conflict. For example, CBT therapists negatively appraise treatment manuals and homework if they believe that manuals and homework negatively impact the therapeutic relationship (Addis et al., 2006; Addis & Krasnow, 2000; Kazantzis et al., 2005). Additionally, therapists' negative beliefs about exposure, including that it is damaging to the therapeutic relationship (Deacon, Farrell, et al., 2013), is associated with a

reduction in its use (Pittig et al., 2019; Reid et al., 2018; Whiteside et al., 2016).

Therefore, beliefs that alliance is more important than adherence to protocol-specified techniques might contribute to a reduced use of therapy techniques (Brown et al., 2013b) – a phenomenon Waller (2009) has termed ‘therapist drift’. Therapist drift might be particularly likely in early therapy, with therapists potentially believing that a strong alliance should be established to drive early change before techniques can be introduced.

Which Therapists Are More Likely to Engage in Therapist Drift and Why?

Therapist drift is likely to be impacted by several factors. For example, therapist drift might be encouraged by service culture or supervision style (Waller & Turner, 2016). Service user factors are also important. For example, higher service user expectancy regarding therapy outcomes is associated with greater homework adherence, and therefore might reduce therapeutic drift (Westra et al., 2007).

Therapists’ beliefs about therapy and responses to service users are also likely to be important. For example, therapist drift might relate to Meehl’s (1973) ‘spun glass theory of the mind’ – an assumption that service users cannot tolerate stressful therapy components. Thus, therapists who feel protective of service users might shield them from challenging elements of therapy, possibly to prevent potential alliance ruptures. Some therapists might be at greater risk of therapist drift and ‘protecting’ service users than others.

Waller and Turner (2016) have argued that therapist drift might result from therapists’ own anxiety regarding therapy techniques such as exposure. Therapists might cope with their own anxiety by avoiding certain therapy techniques. For example, anxious therapists show greater concern regarding the delivery of evidence-based

therapy and greater risk of therapist drift when administering CBT for eating disorders (Mulken et al., 2018; Turner et al., 2014; Waller, Stringer, et al., 2012). Additionally, anxious service users might be at greater risk of being excluded from exposure work, if their anxiety provokes anxiety in therapists (Meyer et al., 2014).

Clinician anxiety and increased therapist drift might be impacted by therapist empathy. Therapists who are more empathetic feel stronger emotional reactions in response to service users' emotions (Sprens, McKinnon, Mar, & Levine, 2009). Therefore, more empathetic therapists are likely to feel greater anxiety in response to service users' anxiety. If more empathetic therapists can manage their emotional responses effectively, therapist empathy might be unrelated to therapist drift. However, in the instances where high therapist empathy is combined with an avoidant coping style, more empathetic therapists might possibly manage service users' and their own anxiety by avoiding technique adherence. Additionally, therapists with higher levels of empathy might be more likely to prioritise the alliance, as the two concepts have significant conceptual overlap (Nienhuis et al., 2018).

Finally, Waller, Stringer, et al. (2012) found that older and more experienced therapists were more likely to engage in therapist drift, suggesting that these might be important demographic factors. However, elsewhere, older and more experienced therapists have shown less concern regarding therapeutic technique delivery (Turner et al., 2014).

Are Therapists Making Incorrect Assumptions Regarding Service Users' Beliefs?

In delivering evidence-based practice, therapists should incorporate service users' preferences (Sackett et al., 2000). However, while clinicians might prefer to move away from evidence based techniques in routine practice (Shafran et al., 2009),

this therapeutic drift might not reflect service user preference. An American national survey revealed that service users preferred empirically-supported treatments over other factors, such as the quality of the therapist-patient relationship and therapist empathy (Kirk et al., 2016). Therefore, if therapists are avoiding evidence-based techniques, possibly due to prioritising other aspects of therapy such as the alliance, they might not be representing service users' preferences.

Therapists might be unaware of service users' preferences and beliefs. Therapists might also incorrectly assume service users' beliefs and preferences, based on their own preferences and beliefs. For example, CBT therapists' concerns about and low utilisation of exposure for PTSD and panic disorder is at odds with service users' experiences and preferences for exposure-based therapy (Becker et al., 2004, 2007, 2009; Deacon, Lickel, et al., 2013; Hipol & Deacon, 2013). Additionally, therapists' own training and theoretical orientation can influence their perspective on service users' preferences in PTSD treatment (Garcia et al., 2019).

The Need for Further Research

In conclusion, therapists' beliefs about the relative importance of the alliance and adherence throughout therapy might influence what they prioritise throughout therapy. Therapists' assumptions regarding service users' beliefs and preferences might also impact therapy delivery, potentially negatively if therapists' assumptions are incorrect. Therefore, it will be important to understand therapists' beliefs about the importance of therapy components, and their assumptions about service users' beliefs. The focus of the current research is to quantify and compare CBT therapists' and service users' beliefs regarding the relative importance of alliance and adherence across different stages of therapy.

Aims and Hypotheses

This proposed research had three key aims and six corresponding a priori hypotheses:

- **Aim One:** To determine whether CBT therapists rate the importance of alliance and adherence in CBT the same as service users do. This will be looked at in different stages of therapy (early, mid and late therapy).
 - Hypothesis one: Service users will rate the alliance as less important than therapists do, with the largest difference occurring in early therapy.
 - Hypothesis two: Service users will rate adherence as more important than therapists do, with the largest difference occurring in early therapy.
- **Aim Two:** To determine whether CBT therapists accurately predict service users' ratings of alliance and adherence importance. This will be looked at in different stages of therapy (early, mid and late therapy).
 - Hypothesis three: Service users will rate the alliance as less important than therapists predict, with the largest difference occurring in early therapy.
 - Hypothesis four: Service users will rate adherence as more important than therapists predict, with the largest difference occurring in early therapy.
- **Aim Three:** To determine whether therapists' characteristics and service users' experiences of CBT are associated with how important they rate alliance and adherence to be.

- Hypothesis five: Therapists with the following characteristics will have higher alliance importance ratings and lower adherence importance ratings:
 - Higher anxiety
 - Higher empathy
 - Greater age
 - More years' experience practicing CBT
- Hypothesis six: Therapists with the following characteristics will predict higher alliance importance ratings and lower adherence importance ratings in service users:
 - Higher anxiety
 - Higher empathy
 - Greater age
 - More years' experience practicing CBT

Method

Ethics

Ethical approval was granted by the Sheffield University Ethics Committee (see Appendix A for approval letter). Participants were directed to an information page (Appendix B) and confirmed their consent before continuing with the study (Appendix C). Participants were told that they had the right to withdraw at any time during or after the study. The debriefing information (Appendix D) included contact details of the researchers. Participants were encouraged to contact the researchers for any queries or ethical issues, including withdrawal of their data from the study (by using a unique ID code generated during participation, allowing data to be identified whilst maintaining

confidentiality). Study adverts posted online reminded participants to protect their confidentiality by not responding to posts publicly. Data were collected and stored via the Qualtrics system, on a secure University computer network. Data were password-protected, with only members of the research team having access. It was not anticipated that participation in the study would be distressing for participants.

Design

A mixed, cross-sectional design was used. A quantitative questionnaire approach was employed to measure participants' beliefs regarding importance of therapy components, participant demographics, therapists' characteristics and service users' experience of CBT. An online questionnaire was employed to maximise anonymity and ease of participation.

Aims one and two had the following independent and dependent variables:

- Independent variables:
 - Type of participant (CBT therapist or service user; between-subjects variable)
 - Stage of therapy (early, middle, late; within-subjects variable)
- Dependent variables:
 - Ratings of alliance importance
 - Ratings of adherence importance
 - Predictions of service users' ratings of alliance importance (therapists only)
 - Predictions of service users' ratings of adherence importance (therapists only)

Aim three was investigated using linear regression analyses. Full details of these analyses and relevant variables are given in the data analysis section.

Participants

There were two groups of participants – CBT therapists and CBT service users. Therapists needed to have a qualification or accreditation in CBT and needed to have routinely delivered individual CBT within the previous two years. Service users needed to have completed individual CBT within the previous two years.

An a priori sample size calculation, conducted on the assumption of using 2x2 mixed ANOVAs to investigate study aims one and two, was performed to determine sample size targets. To detect a medium effect size at power .80 for an alpha level of .05, Cohen (1992) gives a required sample size of 64 participants per group. This target was met, with 103 therapists recruited (75 completers) and 181 service users recruited (140 completers). Overall, 41 service users (22.7%) and 28 therapists (27.2%) dropped out of the study. See Figure 1 for dropout rates throughout the study and Table 1 for participant demographics. Note that demographic data were taken at the end of the study and are therefore only available for completers.

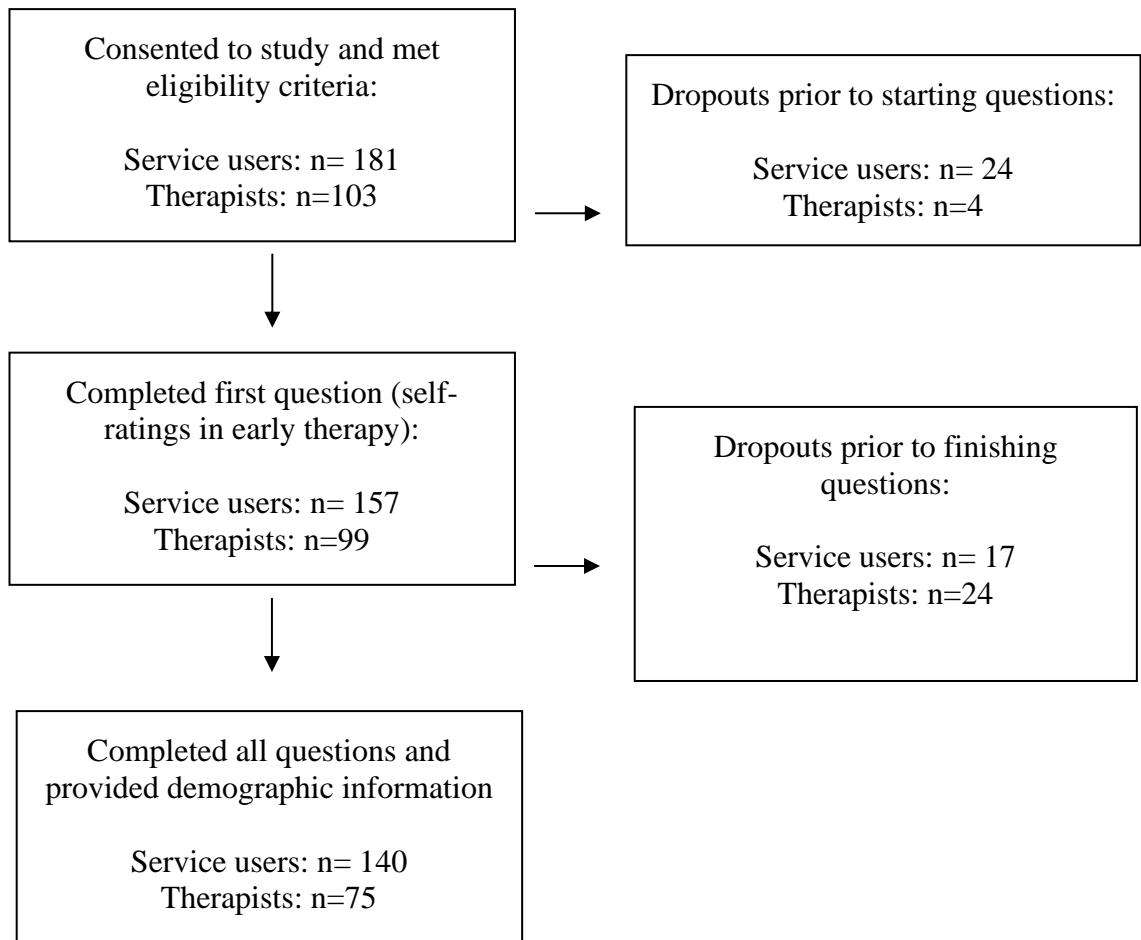


Figure 1. Dropout of participants during the study

Table 1.

Participant demographics

	Service users N (%)	Therapists N (%)	Total N (%)
Gender			
Female	112 (80)	52 (69.3)	164 (76.3)
Male	24 (17.1)	23 (30.7)	47 (21.9)
Other	3 (2.2)	0 (0)	3 (1.4)
Prefer not to say	1 (0.7)	0 (0)	1 (0.5)
Age (years)			
10-29	76 (54.3)	3 (4)	79 (36.7)
30-49	49 (35)	41 (54.7)	90 (41.9)
50-69	14 (10)	29 (38.7)	43 (20)
70-89	1 (0.7)	2 (2.7)	3 (1.4)
Mean \pm SD	32.2 \pm 11.9	47.1 \pm 11.4	37.4 \pm 13.7
Experience of CBT on my symptoms/difficulties:			
CBT made them worse	8 (5.7)		
CBT had no impact on them	17 (12.1)		
CBT helped them to improve a little	31 (22.1)		
CBT helped them to improve moderately	41 (29.3)		
CBT helped them to improve a large amount	33 (23.6)		
CBT helped me to recover from them	10 (7.2)		
CBT qualifications*			
Doctorate in clinical psychology		16 (21.3)	
Doctorate or qualification in counselling psychology		4 (5.3)	
Improving Access to Psychological Therapies (IAPT) qualification		12 (16)	
Post-graduate diploma/certificate in CBT		52 (69.3)	
Other		17 (22.7)	
Years delivering CBT			
Mean \pm SD		12.6 \pm 7.6	

*Percentage values do not total to 100%, as participants could select more than one option

Therapists were recruited by emails sent to registered British Association for Behavioural and Cognitive Psychotherapies (BABCP) members. Service users were recruited by email from the University of Sheffield student population and online recruitment tools, such as Survey Swap and Survey Circle. Participants were also recruited via emails to mental health services and charities (e.g., OCD Action, Sheffield Flourish, Combat Stress, and MQ Mental Health). Emails included information on the study and a link for participation (see Appendix E). Participating charities promoted the study through internal mailing lists and posts on their website or social media.

Ideally, participants in each group would have been matched by recruiting dyadic pairs of therapists and service users, allowing for greater control of confounding variables. However, this approach was not taken due to practical limitations. The research team had experienced previous difficulties recruiting dyadic pairs of participants, making this approach unfeasible within the required research timeframe

Procedure

Two questionnaires, one for therapists and one for service users, were created and hosted online using Qualtrics survey software. Online adverts for the study contained a link to the appropriate questionnaire (see Appendix E). Participants following the link were presented with the study information, consent form and screening questionnaires (see Appendices B, C, F). Suitable and consenting participants were then presented with the appropriate questions and measures, detailed below in the measures section. Data were collected and stored via the Qualtrics system. When participants had finished the questionnaires, they were directed to a page of debriefing information (see Appendix D).

The design and wording of the study materials, including online adverts, information sheets and questionnaires, was developed in collaboration with two service

user representatives and two CBT therapists. This was to ensure it was easily understandable and interpreted in the way intended by the researchers.

Measures

CBT Component Importance Questionnaires

Using a measure designed for this study, service users and therapists were asked to self-rate how important each of six common CBT components were for therapy outcomes (see Appendices G and H). Importance ratings were on a seven-point Likert scale. Three CBT components represented therapeutic alliance - agreement on goals, agreement on tasks, and the affective bond. Three CBT components represented adherence to CBT techniques - behavioural techniques, cognitive techniques, and homework tasks. Participants were asked to rate the importance of each component within early therapy (the first third of therapy), mid therapy (the middle third of therapy) and late therapy (the final third of therapy). In addition, therapists were asked to predict service users' importance ratings for CBT components within early, mid and late therapy.

The three alliance items on the questionnaire were developed from Bordin's (1979) three alliance components. Further description and explanation of these alliance components were developed based on the Working Alliance Inventory (Horvath & Greenberg, 1989) (e.g., what the affective alliance bond might involve). The three adherence items were developed in reference to the Cognitive Therapy Scale-Revised (CTS-R; Blackburn et al., 2001), particularly item 11 on the CTS-R, which details evidence-based change methods.

The questionnaire was piloted by asking two CBT therapists and two CBT service users to complete, review and discuss the questionnaire with the lead researcher.

This pilot was carried out to ensure the questionnaire was easily understandable, and aligned with service users' and therapists' understanding of CBT. Discussions from this process resulted in some of the questionnaire wording being changed to read more clearly, as well as additional examples being listed to further explain some questionnaire items.

Empathy

Therapists were asked to complete the Toronto Empathy Questionnaire (TEQ) as a measure of empathy (see Appendix I). The TEQ is a 16-item self-report scale which was developed as a unifactorial construct of empathy. The TEQ conceptualises empathy as an emotional process. It has good internal consistency (Cronbach's $\alpha = 0.85$), test-retest reliability ($r=0.81$) and has shown convergent validity with other self-report and behavioural measures of empathy (Sprens et al., 2009).

Intolerance of Uncertainty

Therapists were asked to complete the 12-item version of the Intolerance of Uncertainty Scale as a measure of anxiety (IUS-12; Carleton, Norton, & Asmundson, 2007; see Appendix J). This measure was chosen due to its brief length and good psychometric properties. The IUS-12 was found to have excellent internal consistency (Cronbach's $\alpha = 0.87 - 0.91$) and good test-retest reliability ($r=0.77$). The IUS-12 also correlates highly ($r=0.94$) with the original, 27-item version of the IUS (Carleton et al., 2007; Khawaja & Yu, 2010). The IUS-12 consists of two factors – prospective anxiety (an inability to tolerate unpredictable events and circumstances) and inhibitory anxiety (an anxiety-related inhibition of action; Carleton et al., 2007). However, a bifactor model of the IUS-12 also supported the presence of a general intolerance of uncertainty factor (Hale et al., 2016).

Demographic Data and CBT Experience

Demographic data were collected for all participants completing the study, including age and gender. Additionally, therapists were asked their number of years' experience delivering CBT and professional qualifications. Service users were asked to rate what impact CBT had on their symptoms, which was operationalised as a 6-point Likert scale, ranging from CBT making symptoms worse to CBT helping the service user to recover from their symptoms. Higher scores indicated greater symptom recovery. See Appendix K for the full list of participant demographic and CBT experience questions.

Data Analysis

Normality of data were investigated via Kolmogorov-Smirnov tests, investigation of skewness and kurtosis values and visual inspection of histogram and Q-Q plots (Field, 2018; see Appendix L).

Aim One

Initially aims one and two were planned to be analysed using mixed ANOVAs. However, data pertaining to aims one and two were non-normal in their distribution. Normality could not be achieved using data transformation. Therefore, parametric analyses could not be applied.

Aim one was to determine whether CBT therapists rate the importance of alliance and adherence in CBT the same as service users do, across different stages of therapy. To achieve this aim, mean importance ratings for alliance items and mean importance ratings for adherence items were calculated for each participant, for each stage of therapy (early, mid, late). Mann-Whitney U tests were conducted at each stage of therapy, comparing service users' average alliance ratings with therapists' average

alliance ratings. Mann-Whitney U tests were also conducted at each stage of therapy, comparing service users' average adherence ratings with therapists' average adherence ratings. Effect size estimates for Mann-Whitney U tests were calculated, allowing for comparison of effect sizes. As recommended by Field (2018), estimated effect sizes were calculated using the formula $r = z / \sqrt{N}$.

Aim Two

Aim two was to determine whether CBT therapists accurately predict service users' ratings of alliance and adherence importance, across different stages of therapy. To achieve this aim, therapists' predictions of service users' alliance and adherence importance ratings were averaged for each therapy stage. Mann-Whitney U tests were conducted at each stage of therapy, comparing therapists' predictions of service users' alliance ratings with service users' actual alliance ratings. Mann-Whitney U tests were also conducted at each stage of therapy, comparing therapists' predictions of service users' adherence ratings with service users' actual adherence ratings. As per aim one, effect size estimates were calculated for Mann-Whitney U tests.

Aim Three

Aim three involved determining whether participants' characteristics or CBT improvement scores were associated with participants' beliefs about alliance and adherence importance. This was investigated for service users' and therapists' own beliefs regarding alliance and adherence importance, as well as therapists' predicted scores for service user ascribed importance. Separate analyses were not conducted according to stage of therapy. Therefore, alliance and adherence importance scores were averaged across all stages (early, mid and late therapy).

For service user data, two multiple linear regressions were conducted, one predicting mean alliance importance scores and one predicting mean adherence importance scores. Service users' CBT symptom/difficulty improvement ratings were included as independent variables. When mean alliance scores were the dependent variable, mean adherence scores were entered as an independent variable, and vice versa. The enter procedure was used.

For therapist data, four multiple linear regressions (simultaneous entry method) were conducted, with the following as dependent variables:

- A) Therapists' mean self-ratings of alliance importance
- B) Therapists' mean self-ratings of adherence importance
- C) Therapists' mean predictions of service users' alliance importance
- D) Therapists' mean predictions of service users' adherence importance

The independent variables in each case were:

- Intolerance of uncertainty scores
- Empathy scores
- Years of experience delivering CBT
- Age
- Gender
- Adherence importance scores (A and C only)
- Alliance importance scores (B and D only)

Before conducting regressions, absence of multicollinearity of independent variables was assessed by conducting bivariate correlations between all independent variables. No Pearson correlations greater than 0.7 were revealed. Furthermore, variance inflation factor values included in models were all less than five. Calculation of variance values revealed the assumption of non-zero variances was upheld.

Assumptions of linearity and homoscedasticity were established through visual inspection of a scatterplot of standardised predicted residuals against standardised residuals. Outliers on this plot (\pm three) were removed from the regression. Visual inspection of histogram and Q-Q plots was used to establish normality of residuals (Field, 2018). See Appendix M for tables and plots related to these assumptions. Additionally, data also met the assumption of independent errors for each regression, with Durbin-Watson values being within an acceptable range (see Tables 4-9)

Results

Aim One

Hypothesis One

Mann-Whitney U tests revealed that service users rated alliance importance significantly lower than therapists, across all stages of therapy. This difference was largest in early therapy ($r = -0.32$), compared with mid ($r = -0.25$) and late therapy ($r = -0.26$). See Table 2 for full results. The results support the hypothesis that service users rate alliance as less important than therapists do, and that the largest difference occurs in early therapy.

Hypothesis Two

Mann-Whitney U tests revealed that service users rated adherence importance significantly lower than therapists, across all stages of therapy. These differences were associated with small effect sizes ($r = -0.21$ - -0.25). See Table 2 for full results. The results do not support the hypothesis that service users will rate adherence as more important than therapists do, and that the largest will occur in early therapy.

Table 2.

Mann-Whitney U tests comparing service users' and therapists' self-ratings of alliance and adherence importance across therapy

Stage of therapy	Alliance / adherence	Type of importance ratings	N	Overall median	Standard deviation	Mann-Whitney U	Z value	Significance	Effect size (r)
Early therapy	Alliance importance ratings	Service user self-ratings	158	5.83	1.07				
		Therapist self-ratings	99	6.33	0.64	4882.5	-5.11	p < 0.001	-0.32
	Adherence importance ratings	Service user self-ratings	158	5.33	1.16				
		Therapist self-ratings	99	6.00	0.80	5547	-3.95	p < 0.001	-0.25
Mid therapy	Alliance importance ratings	Service user self-ratings	145	5.67	1.16				
		Therapist self-ratings	92	6.00	0.78	4730	-3.8	p < 0.001	-0.25
	Adherence importance ratings	Service user self-ratings	145	5.67	1.16				
		Therapist self-ratings	92	6.00	0.86	4737	-3.78	p < 0.001	-0.25
Late therapy	Alliance importance ratings	Service user self-ratings	140	5.00	1.21				
		Therapist self-ratings	90	5.83	0.95	4349	-3.98	p < 0.001	-0.26
	Adherence importance ratings	Service user self-ratings	140	5.33	1.24				
		Therapist self-ratings	90	5.67	0.97	4721.5	-3.22	p = 0.001	-0.21

Key: Emboldened results indicate a statistical significance at an alpha level of 0.05

Aim Two

Hypothesis Three

Mann-Whitney U tests revealed that service users rated alliance importance similarly to therapists' predictions, across all stages of therapy. See Table 3 for full results. The results did not support the hypothesis that service users will rate the alliance as less important than therapists predict, or that the largest difference will occur in early therapy.

Hypothesis Four

Mann-Whitney U tests revealed that service users rated adherence as significantly more important than therapists predicted in early and mid-therapy, but not late therapy. The effect sizes for these differences were larger in early therapy ($r = -0.32$), than mid therapy ($r = -0.14$). See Table 3 for full results. The results broadly support the hypothesis that service users will rate adherence as more important than therapists predict, and that the largest difference will occur in early therapy.

Table 3.

Mann-Whitney U tests comparing therapist-predicted service user ratings and actual service user self-ratings of alliance and adherence importance across therapy

Stage of therapy	Alliance / adherence	Type of importance ratings	N	Overall median	Standard deviation	Mann-Whitney U	Z value	Significance	Effect size (r)
Early therapy	Alliance importance ratings	Service user self-ratings	158	5.83	1.07				
		Therapist-predicted service user ratings	99	5.67	0.85	5749	-1.3	p = 0.195	-0.08
	Adherence importance ratings	Service user self-ratings	158	5.33	1.16				
		Therapist-predicted service user ratings	99	4.67	0.90	3944.5	-4.87	p < 0.001	-0.32
Mid therapy	Alliance importance ratings	Service user self-ratings	145	5.67	1.16				
		Therapist-predicted service user ratings	92	5.33	0.84	5496.5	-0.19	p = 0.849	-0.01
	Adherence importance ratings	Service user self-ratings	145	5.67	1.16				
		Therapist-predicted service user ratings	92	5.00	1.00	4625	-2.12	p = 0.034	-0.14
Late therapy	Alliance importance ratings	Service user self-ratings	140	5.00	1.21				
		Therapist-predicted service user ratings	90	5.33	0.91	4616.5	-1.76	p = 0.079	-0.12
	Adherence importance ratings	Service user self-ratings	140	5.33	1.24				
		Therapist-predicted service user ratings	90	5.00	1.09	5090.5	-0.68	p = 0.496	-0.05

Key: Emboldened results indicate a statistical significance at an alpha level of 0.05

Aim Three

Aim three involved investigating whether participants' characteristics or CBT improvement scores are associated with how important they rate alliance and adherence to be. Multiple linear regressions were conducted on the relevant data to investigate this aim.

A multiple linear regression significantly predicted service users' alliance importance scores. Service users' adherence importance scores contributed significantly to the model, although service users' CBT symptom improvement ratings did not. A second multiple linear regression significantly predicted service users' adherence importance scores. Service users' alliance importance scores and CBT symptom improvement ratings significantly contributed to the model.

Service users who experienced greater symptom improvement in CBT viewed adherence (but not alliance) as more important, with a partial correlation of $r=0.21$. Service users who viewed alliance as more important also viewed adherence as more important and vice versa (see Tables 4 and 5).

Table 4.

Results of multiple linear regression predicting service user alliance importance scores

Independent variables summary					Model summary					
Independent variable	B	SE	β	t (significance)	Partial correlation	Degrees of freedom	Outliers removed	F (significance)	R ² (R ² Adjusted)	Durbin-Watson value
Constant	1.96	0.33		6.00 (p<0.001)						
Adherence importance score	0.69	0.06	0.73	11.85 (p<0.001)	0.72					
CBT improvement score	-0.05	0.04	-0.07	-1.21 (p=0.23)	-0.10					
						2, 134	3	70.88 (p<0.001)	0.51 (0.51)	1.76

Key: B=Unstandardized B, SE=Standardised Error, β = Standardised beta.

Emboldened results indicate a statistical significance at an alpha level of 0.05

Table 5.

Results of multiple linear regression predicting service user adherence importance scores

Independent variables summary						<u>Model summary</u>				
Independent variable	B	SE	β	t (significance)	Partial correlation	Degrees of freedom	Outliers removed	F (significance)	R² (R² Adjusted)	Durbin-Watson value
Constant	0.90	0.37		2.42 (p=0.02)						
Alliance importance score	0.74	0.06	0.73	11.85 (p<0.001)	0.72					
CBT improvement score	0.11	0.04	0.15	2.50 (p=0.01)	0.21					
						2, 134	3	75.73 (p<0.001)	0.53 (0.52)	1.99

Key: B=Unstandardized B, SE=Standardised Error, β = Standardised beta.

Emboldened results indicate a statistical significance at an alpha level of 0.05

Hypothesis Five

A multiple linear regression significantly predicted therapists' alliance importance scores. Only therapists' adherence importance scores contributed significantly to the model. A second multiple linear regression significantly predicted therapists' adherence importance scores. Only therapists' alliance importance scores and age contributed significantly to the model.

The results only partially supported the hypothesis that therapists' characteristics would be associated with higher alliance importance ratings and lower adherence importance ratings. Older therapists viewed adherence as less important, with a partial correlation between therapist age and adherence ratings of $r = -0.31$. Therapists who viewed the alliance as more important also viewed adherence as more important and vice versa (see Tables 6 and 7).

Table 6.

Results of multiple linear regression predicting therapist self-rated alliance importance scores

Independent variables summary						<u>Model summary</u>				
Independent variable	B	SE	β	t (significance)	Partial correlation	Degrees of freedom	Outliers removed	F (significance)	R² (R² Adjusted)	Durbin-Watson value
Constant	2.02	0.88		2.31 (p=0.24)						
Therapist adherence importance score	0.62	0.08	0.69	7.96 (p<0.001)	0.70					
TES total	<0.00	0.01	-0.00	-0.04 (p=0.97)	-0.01					
IUS-12 total	-0.01	0.01	-0.08	-0.82 (p=0.42)	-0.10					
Years' experience delivering CBT	<0.00	0.01	0.04	0.33 (p=0.75)	0.04					
Age	0.01	0.01	0.19	1.72 (p=0.09)	0.21					
Gender*	-0.14	0.13	-0.09	-1.03 (p=0.31)	-0.13					
						6, 67	1	13.47 (p<0.001)	0.55 (0.51)	1.84

Key: B=Unstandardized B, SE=Standardised Error, β = Standardised beta, *Gender coded as 0=female, 1=male

Emboldened results indicate a statistical significance at an alpha level of 0.05

Table 7.

Results of multiple linear regression predicting therapist self-rated adherence importance scores

Independent variables summary						Model summary				
Independent variable	B	SE	β	t (significance)	Partial correlation	Degrees of freedom	Outliers removed	F (significance)	R² (R² Adjusted)	Durbin-Watson value
Constant	0.43	0.94		0.46 (p=0.65)						
Therapist alliance importance score	0.81	0.09	0.75	9.06 (p<0.001)	0.75					
TES total	0.02	0.01	0.15	1.84 (p=0.07)	0.22					
IUS-12 total	<0.00	0.01	0.03	0.29 (p=0.77)	0.04					
Years' experience delivering CBT	0.01	0.01	0.09	0.87 (p=0.39)	0.11					
Age	-0.02	0.01	-0.27	-2.62 (p=0.01)	-0.31					
Gender*	0.13	0.14	0.08	0.95 (p=0.35)	0.12					
						6, 66	2	16.75 (p<0.001)	0.60 (0.57)	2.16

Key: B=Unstandardized B, SE=Standardised Error, β = Standardised beta, *Gender coded as 0=female, 1=male

Emboldened results indicate a statistical significance at an alpha level of 0.05

Hypothesis Six

A multiple linear regression significantly accounted for therapists' predictions of service users' alliance importance scores. Only therapists' adherence importance scores, gender, and empathy contributed significantly to the model. A second multiple linear regression significantly predicted therapists' predictions of service users' adherence importance scores. Only therapists' alliance importance scores contributed significantly to the model.

The results only partially supported the hypothesis that therapists' characteristics would be associated with higher predictions of service users' alliance importance ratings and lower predictions of service users' adherence importance ratings. More empathetic and female therapists thought that service users would view the alliance as more important. Therapists who viewed alliance as more important also thought service users would view adherence as more important. Therapists who viewed adherence as more important also thought service users would view alliance as more important (see Tables 8 and 9)

Table 8.

Results of multiple linear regression predicting therapist-predicted service user alliance importance scores

Independent variables summary						<u>Model summary</u>				
Independent variable	B	SE	β	t (significance)	Partial correlation	Degrees of freedom	Outliers removed	F (significance)	R² (R² Adjusted)	Durbin-Watson value
Constant	0.93	1.20		0.78 (p=0.44)						
Therapist adherence importance score	0.37	0.11	0.37	3.49 (p=0.001)	0.39					
TES total	0.04	0.02	0.23	2.17 (p=0.03)	0.26					
IUS-12 total	0.01	0.01	0.09	0.77 (p=0.44)	0.09					
Years' experience delivering CBT	0.02	0.01	0.22	1.65 (p=0.10)	0.20					
Age	<0.00	0.01	0.04	0.31 (p=0.75)	0.04					
Gender*	-0.39	0.18	-0.23	-2.20 (p=0.03)	-0.22					
						6, 68	0	4.87 (p<0.001)	0.30 (0.24)	1.87

Key: B=Unstandardized B, SE=Standardised Error, β = Standardised beta, *Gender coded as 0=female, 1=male

Emboldened results indicate a statistical significance at an alpha level of 0.05

Table 9.

Results of multiple linear regression predicting therapist-predicted service user adherence importance scores

Independent variables summary						Model summary				
Independent variable	B	SE	β	t (significance)	Partial correlation	Degrees of freedom	Outliers removed	F (significance)	R ² (R ² Adjusted)	Durbin-Watson value
Constant	1.10	1.40		0.78 (p=0.44)						
Therapist alliance importance score	0.52	0.14	0.42	3.85 (p<0.001)	0.42					
TES total	0.03	0.02	0.16	1.47 (p=0.15)	0.18					
IUS-12 total	-0.01	0.02	-0.10	-0.86 (p=0.39)	-0.10					
Years' experience delivering CBT	0.01	0.02	0.09	0.63 (p=0.53)	0.08					
Age	-0.01	0.01	-0.16	-1.18 (p=0.24)	-0.14					
Gender*	0.02	0.21	0.01	0.11 (p=0.91)	0.01					
						6, 68	0	4.11 (p=0.001)	0.27 (0.20)	2.46

Key: B=Unstandardized B, SE=Standardised Error, β = Standardised beta, *Gender coded as 0=female, 1=male

Emboldened results indicate a statistical significance at an alpha level of 0.05

Discussion

This study had three key aims - first, to investigate whether CBT therapists and service users view alliance and adherence in CBT with similar levels of importance; second, to determine whether therapists can accurately predict service users' views on the importance of alliance and adherence; and finally to determine whether therapists' characteristics or service users' previous therapy experiences are associated with their views of alliance and adherence importance. Regarding the first aim, as hypothesised, therapists viewed alliance as more important than service users did, especially during early therapy. Contrary to hypothesis, therapists also viewed adherence as more important than service users did. Regarding the second aim, contrary to hypothesis, therapists were accurate at predicting service users' views on alliance importance. However, as hypothesised, therapists underestimated how important service users viewed the adherence to be in early and mid-therapy. Regarding the third aim, as hypothesised, older therapists viewed adherence as less important. Also, more empathetic therapists (as hypothesised) and female therapists predicted that service users would view the alliance as more important. Additionally, service users with more successful experiences of CBT viewed adherence as more important.

Comparison of Results to Previous Research

The finding that CBT therapists viewed alliance and adherence as more important than service users accords with some previous research, but contrasts with others. For example, Van Grieken et al. (2016) discovered that mental health professionals and service users ascribed similar levels of priority to alliance- and

technique-related items in treating depression, rather than showing discrepancy. Elsewhere, service users ascribed a greater degree of therapeutic change to the role of models/techniques than integrative therapists did in a study by Thomas (2006). This finding is in contrast with the current finding that therapists view adherence to techniques as more important than service users do. However, it does reflect the current pattern of results in which therapists underestimated the importance of adherence to service users. Thomas (2006) also discovered that therapists ascribed a similar but slightly higher degree of therapeutic change to alliance than service users did, which was in line with the current research. Taken together, these findings suggest that clinicians are unlikely to view the alliance as less important than service users do. However, clinicians' views on adherence to techniques relative to service users' views appear to be more variable.

The current research also found that some therapists' characteristics are associated with their views on the importance of alliance and adherence. For example, older (but not more experienced) therapists ascribed less importance to adherence. This finding partially corresponds with previous findings that older therapists, but also more experienced therapists, were more likely to avoid delivery of therapy techniques (Waller, Stringer, et al., 2012). The current research also found that more empathetic therapists predicted that service users would view the alliance as more important. This finding corresponds to a previous meta-analysis in which alliance was found to be significantly related to perceptions of the therapists' empathy (Nienhuis et al. 2018).

Contrary to expectation, anxiety was not predictive of therapists' alliance or adherence scores. This finding contrasts with previous research in CBT for eating disorders, which indicated more anxious therapists were more likely to show concerns

about adherence to techniques and avoid using them (Mulken et al., 2018; Turner et al., 2014; Waller, Stringer, et al., 2012).

Current Results and their Relation to Psychological Theory

Why Do Therapists View Adherence and Alliance as More Important Than Service Users Do?

It is unclear why therapists ascribed higher importance to both alliance and adherence than service users did. Previous research indicates that service users' perspectives on the alliance are more strongly associated with therapeutic outcomes than therapists' perspectives (Horvath et al., 2011). Therefore, service users' perspectives on the importance of therapy components might be more accurate regarding actual outcomes. If this suggestion is correct, therapists' higher ratings of adherence and alliance importance in the current study might represent an over-estimation of the importance of these components. This finding might be explained by therapists' overall positive bias towards therapy, as noted in the literature. For example, therapists have been found to overestimate other elements of therapy, such as the effectiveness of their own skills and the outcomes of therapy (Brosan et al., 2008; Macdonald & Mellor-Clark, 2015; Walfish et al., 2012).

The tendency of CBT therapists to overestimate the role of both alliance and treatment techniques in explaining outcomes has been observed by D'Souza Walsh et al. (2019). They theorise that therapists might place more importance on elements of therapy they can control, and neglect the other factors in recovery, such as those external to the therapy process. This notion is supported by Van Grieken et al.'s (2016) findings, in which extra-therapeutic factors such as social support and time spent on waiting lists were perceived to be more important by service users than clinicians.

Why Do Therapists and Service Users Disagree About Early Alliance?

The biggest difference between service users' and therapists' beliefs was seen in early therapy, where therapists believed the alliance to be more important than service users. An early focus on alliance might reflect the elements of alliance-building which involve setting goals and tasks for therapy, in order to determine the direction of therapy ahead (Bordin, 1979). Therapists might place more importance on the alliance early in therapy as they might feel a greater sense of responsibility for driving these processes. If therapists do experience a greater sense of responsibility, this might be underpinned by findings that variations in therapists' contributions to the alliance have a larger impact on outcomes than service users' contributions to the alliance (Baldwin et al., 2007; Del Re et al., 2012)

The greater importance therapists place on early alliance might also be related to beliefs that the alliance is important in driving later therapeutic outcomes. These beliefs have been reported by CBT therapists in previous studies (Brown et al., 2013a; Mulkens et al., 2018). These beliefs might not be shared by service users, given the discrepancy in early alliance importance scores between service users and therapists.

Why Do Therapists Underestimate the Importance of Adherence to Service Users?

The results indicate that therapists view adherence as more important than service users, but underestimate the importance of adherence to service users. This underestimation might be explained by the idea that therapists value adherence to techniques but hold concerns about how techniques will be received by service users. For example, Deacon et al. (2013) discovered that therapists hold negative beliefs about exposure, including that it might harm the therapeutic relationship and be experienced as intolerable for service users. Therapists have also previously shown concerns that

adherence to protocolised techniques (Addis et al., 2006) and use of homework (Kazantzis et al., 2005) might negatively impact the therapeutic relationship. Therefore, the observed “therapist drift”, in which therapists avoid using evidence-based techniques (Waller, 2009; Waller & Turner, 2016), might be driven by therapists’ concerns over how adherence to these techniques will be accepted by service users. In turn, these concerns might result in an under-estimation by clinicians of service users’ preference for adherence. Furthermore, if therapists believe adherence can negatively impact alliance, they might assume service users show reduced preference for adherence early in therapy, particularly if they believe early alliance and therapeutic relationship development are required to start the therapeutic change process (Brown et al., 2013a; Mulkens et al., 2018).

Why are Therapists’ Characteristics and Service Users’ Experiences of CBT Associated with Beliefs About Alliance and Adherence Importance?

It is surprising that therapist age, but not experience, was associated with adherence importance scores, and difficult to theorise why this might be the case. Addis et al. (2006) argued that therapists might become bored and dissatisfied with adherence to manualised therapies. This boredom might increase over time, leading to reductions in the degree to which adherence is viewed as important in older therapists. However, by this explanation, we would expect to see the same effect in therapists with a greater number of years’ experience. Another explanation might be that as rigidity of thinking increases with age (Schultz & Searleman, 2002), older therapists might be less open to learning and adhering to protocolised techniques.

It is also surprising that anxiety was not associated with therapists’ alliance or adherence scores. A possible explanation is that therapist anxiety might only be

associated with the use of certain techniques, such as anxiety-related behavioural techniques, rather than adherence in general.

Results indicated that more empathetic, female therapists attributed higher levels of alliance importance to service users. This finding might relate to previous findings that stronger alliances are associated with female and more empathetic therapists (Bhati, 2014; Nienhuis et al., 2018). If therapists with these characteristics form stronger alliances, they might then attribute a greater degree of successful therapy outcome to this stronger alliance, making predictions that alliance is more important for service users also. It is interesting to note, however, that neither empathy nor gender were predictive of therapist self-ratings of alliance importance.

It is also interesting to note that service users who experienced greater symptom improvement in CBT also viewed adherence as more important. The reason for this association is unclear. However, in a qualitative study by Nilsson et al. (2007), service users who were satisfied with CBT displayed a greater desire to engage in practical strategies to overcome their difficulties and wanted expert input to achieve this. Service users who were dissatisfied with CBT, meanwhile, wanted more understanding and reflection from the therapy. Therefore, it might be that service users in the current study benefitted more from CBT if they had an adherence-motivated approach. However, strong conclusions cannot be drawn from the current study, given the non-causal nature of the data.

Limitations

The current research has several limitations. Firstly, therapists and service users were not recruited as dyads, due to practical limitations. Therefore, the therapists and service users recruited might represent different underlying populations, which might

have impacted on their responses. Also, data were not taken on the type or context of CBT that participants engaged in. Therefore, comparisons between groups regarding CBT type or context cannot be made. Without those data, it is not possible to see whether the many different areas of CBT treatment were represented in the study findings, or whether some types of CBT were over-represented. Further difficulties with the CBT therapist sample include questions of how representative this sample is of CBT therapists more generally. For example, some therapists ($n = 5$) only listed their CBT qualifications as ‘other’, making it difficult to ascertain whether they were explicitly trained in CBT.

Some differences between participant groups were indicated by demographic data collected. Therapists had a higher mean age (47.1 years) than service users (32.2 years; see Table 1). The mean age difference between groups might have impacted on the results, as age predicted a reduction in adherence importance scores for therapists. The service users also had a higher proportion of female participants than therapists, which might have also impacted results.

Other limitations include the fact that the data were non-parametric. Therefore, three mixed ANOVAs capturing the interactions of within- and between-participant effects could not be conducted, as initially planned. Instead, between-participant effects were explored using twelve Mann-Whitney U tests. However, this increased number of statistical tests would have increased the likelihood of a familywise type one error. Conversely, small effects might have been missed for the multiple linear regression models predicting therapists’ alliance and adherence scores. The large number of predictors included in these models indicate they were underpowered to detect smaller but still significant effects (Field, 2018).

Future Research

This study focused on investigating service users' and therapists' beliefs regarding alliance and adherence within CBT. Future research could expand upon this research by investigating similar beliefs within different therapeutic models, to see if a similar result emerges. Additionally, this study arguably over-simplified the concepts of alliance and adherence by averaging different elements of these concepts together. Future research could improve on this methodology by investigating the different components of alliance and adherence separately (for example, is the therapeutic bond seen as more important than agreement on goals?). The findings of this study could also be followed up with qualitative research, determining why therapists and service users express the beliefs that they do. This qualitative research could provide more insight into whether the author's theoretical explanations of the results were accurate. Future research could also investigate how important it is for therapists to accurately predict service users' preferences. For example, does therapy have better outcomes and higher service user satisfaction when the therapist is better able to predict service users' preferences? This question could be investigated by recruiting therapist-patient dyads and linking questionnaire results with therapy outcome data.

Future research could also address additional factors which have been shown to impact alliance and adherence, such as attachment style and treatment expectation (Folke et al., 2016; Puls et al., 2019). It would be valuable to determine how therapists might change their beliefs regarding the importance of therapy components, when working with clients with different attachment styles or presentations. Additional research could also focus more on the interaction between alliance and adherence, which might vary between service users. For example, some research indicates that adherence might be more important to therapy outcomes when therapeutic alliance is

lower (Barber et al., 2006; Gaston et al., 1998). It would be valuable to determine whether this finding is reflected in therapists' views and assumptions regarding interactions between alliance and adherence.

Clinical Implications

This research indicates that therapists are accurate in assuming the importance that service users ascribe to alliance within therapy. If therapists draw upon these assumptions to guide the focus of therapy, the amount of importance and focus therapists place on alliance within therapy is likely to reflect service users' preferences. Therefore, therapists are encouraged to continue placing importance and focus upon alliance-building within the therapy process. However, therapists are also encouraged to prioritise adherence to techniques, especially within early and mid-therapy. Therapists should be aware that they might not be focusing on adherence as much as service users would like, particularly if they assume service users to hold negative beliefs about adherence.

Therapists should be encouraged to ask about service users' preferences for therapy, rather than making assumptions. Asking about service users' preferences might empower service users, communicating to them that their beliefs are important. If therapists' assumptions about service users' lack of preference for adherence are unfounded, therapists might feel more confident in promoting adherence to techniques early on in therapy. If therapists' assumptions are found to be accurate and service users do show a lack of interest in adherence, this gives therapists an opportunity to discuss the rationale for adherence to techniques in greater detail. Hopefully, this discussion would encourage service users' greater acceptance of the treatment rationale, which has been associated with positive outcomes (Addis & Jacobson, 2000). Therapists should also remember that service users who are reticent about adherence to techniques at the

start of therapy might change their opinions following successful treatment, given that the current research indicates that better CBT outcomes are associated with higher service user ratings of adherence importance.

It has also been theorised that therapists might avoid adherence to techniques if they believe that adherence to techniques might harm the alliance. Beliefs that adherence and alliance conflict can be challenged by reference to CBT studies indicating positive associations between alliance and adherence (Addis et al., 2006; Brauhardt et al., 2014; Loeb et al., 2005; Puls et al., 2019). However, even when adherence might threaten the alliance, research indicates that alliance ruptures are associated with better therapy outcomes, if ruptures are tolerated and repaired by the therapist (Eubanks et al., 2018; Safran et al., 2011). Therefore, therapists are encouraged to promote adherence to techniques, even at the risk of alliance ruptures, as addressing and repairing these ruptures might be an important part of ultimately successful therapy.

Conclusion

CBT therapists believe alliance and adherence to techniques to be more important for CBT outcomes than service users do. Therapists also give accurate predictions regarding how important alliance is to service users. If therapists draw upon these predictions to guide therapy, then the amount of focus that therapists assign to alliance building is likely to reflect the preferences of service users. However, therapists, especially those who are older, underestimate how important service users view adherence to be in early and mid-therapy. CBT therapists are encouraged to prioritise adherence throughout therapy, particularly as service users who viewed adherence as more important reported more successful CBT outcomes.

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Appendix A: Ethical Approval Letter



Downloaded: 15/02/2019
Approved: 14/02/2019

Ian Johnson
Registration number: 170149433
Psychology
Programme: DClinPsy

Dear Ian

PROJECT TITLE: An investigation into the assumed importance of the alliance relative to adherence within Cognitive Behavioural Therapy: A comparison of therapists and service users beliefs

APPLICATION: Reference Number 024425

On behalf of the University ethics reviewers who reviewed your project, I am pleased to inform you that on 14/02/2019 the above-named project was **approved** on ethics grounds, on the basis that you will adhere to the following documentation that you submitted for ethics review:

- University research ethics application form 024425 (dated 02/02/2019).
- Participant information sheet 1055750 version 1 (02/02/2019).
- Participant consent form 1055751 version 1 (02/02/2019).

The following optional amendments were suggested:

I am not sure if the applicant saw these comments below as there is no new information sheet. There are two separate information sheets, one for therapists and one for service users, but both say the same thing (except for a description of CBT for service users). It therefore isn't clear whether the respondent is completing the questionnaire as a service user or therapist. Could this be made clear? In the advert for the study you use a shortened version of the study title--perhaps it would be better to use this for both information sheets so that you remain consistent?

If during the course of the project you need to [deviate significantly from the above-approved documentation](#) please inform me since written approval will be required.

Yours sincerely

Jilly Martin
Ethics Administrator
Psychology

Appendix B: Information Sheets

Information sheet for service users:

What's important in therapy? Research study for people who have had Cognitive Behavioural Therapy (CBT).

You are being invited to take part in a research project. Before continuing, please read the below information regarding the research before continuing.

What does the study involve and who is invited?

The study involves asking people to rate the importance of different parts of cognitive behavioural therapy. Cognitive behavioural therapy is a talking therapy that aims to improve how people feel and reduce distress and mental health difficulties. Cognitive behavioural therapy involves helping people challenge and change their patterns of thinking and/or behaviour. We are interested in which parts of therapy people view as more important. We are specifically interested in the views of people who have delivered or received individual cognitive behavioural therapy.

People are invited to participate in the study if they have either delivered or received individual cognitive behavioural therapy within the last 2 years.

Participation in the study will involve completing some online questionnaires, asking you to rate how important you believe various parts of cognitive behavioural therapy to be. You will also be asked to complete some basic demographic questions.

The questionnaires will all be completed online and will take approximately 10 minutes of your time.

You will be provided with a debriefing sheet that outlines the study's aims in more detail after completing the questionnaires.

Can I withdraw at any time?

It is your choice whether you wish to take part. If you do decide to take part, you can still withdraw at any time during the study or two weeks after its completion. You do not have to give a reason for withdrawing.

If you agree to participate in the study, you will be asked to generate a unique ID code. If you wish to withdraw after you have completed the study, please email the lead researcher (details below) stating that this is the case and providing your ID code so that your data can be identified and withdrawn. Withdrawal of data is possible up until two weeks after completion.

How will my information be protected?

Data you provide will be collected and stored via the Qualtrics system, on a secure University computer network. Data will be kept securely in accordance with our ethics procedure. It will be password-protected and only members of the research team will have access.

How will my data be used?

This data is being collected as part of a research project conducted by lead researcher and Trainee Clinical Psychologist, Ian Johnson. This research will be used to write a thesis which fulfils part of their doctoral training.

The data that you provide will be aggregated with that of other respondents, to give the researchers an idea about general trends, rather than specific individuals. Your data may also be used by the researchers for subsequent studies, or by other researchers or alongside any scientific publications that arise from the data. However, if the data is used in this way, your response will remain anonymous.

The data will be available to the lead researcher, the lead researcher's supervisor and any collaborators or data processors (for example, statisticians) in an anonymous format. Findings from the data will also be presented in an anonymous format within the research thesis. These findings may also form part of a publication in an academic journal.

The University of Sheffield will act as the Data Controller for this study. This means that the University is responsible for looking after your information and using it properly.

Who has approved this research?

The ethics of this research has been reviewed and approved by The University of Sheffield's Research Ethics Committee.

What if I wish to complain about the way the study has been carried out?

If you would like to make a complaint about this project, in the first instance you should contact the lead researcher. If you do not feel satisfied that your complaint has been dealt with appropriately you can contact the lead researcher's supervisor and head of department, Professor Glenn Waller on g.waller@sheffield.ac.uk. If you feel that your complaint has not been handled to your satisfaction following this, you can contact Dr. Thomas Webb, chair of the Department Ethics Subcommittee on t.webb@sheffield.ac.uk

Contact Information

It is not anticipated that participation of the study will be distressing for participants. However, if there is anything unclear, if you have any further questions about the research, wish to withdraw from the study or make a complaint, please contact the lead researcher at his email below:

Ian Johnson (ijohnson1@sheffield.ac.uk)

Alternatively, you can leave a telephone message with Amrit Sinha, Research Support Officer on: 0114 222 6650 and he will ask Ian to contact you.

Please click the arrow below to proceed to the consent statements.

[Link to consent statements]

Information sheet for therapists:

What's important in therapy? Research study for therapists who use CBT

You are being invited to take part in a research project. Before continuing, please read the below information regarding the research before continuing.

What does the study involve and who is invited?

The study involves asking people to rate the importance of different parts of cognitive behavioural therapy. We are interested in which parts of therapy people view as more

important. We are specifically interested in the views of people who have delivered or received individual cognitive behavioural therapy.

People are invited to participate in the study if they have either delivered or received individual cognitive behavioural therapy within the last 2 years.

Participation in the study will involve completing some online questionnaires, asking you to rate how important you believe various components of cognitive behavioural therapy to be. You will also be asked to predict service users' responses when asked about the importance of therapy components. Finally, you will be asked to complete some additional questionnaires and some basic demographic questions.

The questionnaires will all be completed online and will take approximately 15 minutes of your time.

You will be provided with a debriefing sheet that outlines the study's aims in more detail after completing the questionnaires.

Can I withdraw at any time?

It is your choice whether you wish to take part. If you do decide to take part, you can still withdraw at any time during the study or two weeks after its completion. You do not have to give a reason for withdrawing.

If you agree to participate in the study, you will be asked to generate a unique ID code.

If you wish to withdraw after you have completed the study, please email the lead researcher (details below) stating that this is the case and providing your ID code so that your data can be identified and withdrawn. Withdrawal of data is possible up until two weeks after completion.

How will my information be protected?

Data you provide will be collected and stored via the Qualtrics system, on a secure University computer network. Data will be kept securely in accordance with our ethics procedure. It will be password-protected and only members of the research team will have access.

How will my data be used?

This data is being collected as part of a research project conducted by lead researcher and Trainee Clinical Psychologist, Ian Johnson. This research will be used to write a thesis which fulfils part of their doctoral training.

The data that you provide will be aggregated with that of other respondents, to give the researchers an idea about general trends, rather than specific individuals. Your data may also be used by the researchers for subsequent studies, or by other researchers or alongside any scientific publications that arise from the data. However, if the data is used in this way, your response will remain anonymous.

The data will be available to the lead researcher, the lead researcher's supervisor and any collaborators or data processors (for example, statisticians) in an anonymous format. Findings from the data will also be presented in an anonymous format within the research thesis. These findings may also form part of a publication in an academic journal.

The University of Sheffield will act as the Data Controller for this study. This means that the University is responsible for looking after your information and using it properly.

Who has approved this research?

The ethics of this research has been reviewed and approved by The University of Sheffield's Research Ethics Committee.

What if I wish to complain about the way the study has been carried out?

If you would like to make a complaint about this project, in the first instance you should contact the lead researcher. If you do not feel satisfied that your complaint has been dealt with appropriately you can contact the lead researcher's supervisor and head of department, Professor Glenn Waller on g.waller@sheffield.ac.uk. If you feel that your complaint has not been handled to your satisfaction following this, you can contact Dr. Thomas Webb, chair of the Department Ethics Subcommittee on t.webb@sheffield.ac.uk

Contact Information

It is not anticipated that participation of the study will be distressing for participants.

However, if there is anything unclear, if you have any further questions about the research, wish to withdraw from the study or make a complaint, please contact the lead researcher at his email below:

Ian Johnson (ijohnson1@sheffield.ac.uk)

Alternatively, you can leave a telephone message with Amrit Sinha, Research Support Officer on: 0114 222 6650 and he will ask Ian to contact you.

Please click the arrow below to proceed to the consent statements.

[[Link to consent statements](#)]

Appendix C: Online Consent Form

Please read all of these statements and click ‘I agree’ below if you wish to give your consent

Taking Part in the Project

- I have read and understood the project information given on the previous page.
(If you will answer ‘No’ to this question please do not proceed with this consent form until you are fully aware of what your participation in the project will mean.)
- I have been given the opportunity to contact the principal researcher to ask further questions about the project.
- I agree to take part in the project. I understand that taking part in the project will include completing a series of online questionnaires.
- I understand that my taking part is voluntary and that I can withdraw from the study at any time during the study or up to two weeks following completion of the study. I do not have to give any reasons for why I no longer want to take part and there will be no adverse consequences if I choose to withdraw.

How my information will be used during and after the project

- I understand my personal details such as name, phone number, address and email address etc. will not be collected or revealed to people outside the project.

- I understand and agree that other authorised researchers will have access to my data only if they agree to preserve the confidentiality of the information as requested in this form.
- I understand and agree that other authorised researchers may use my data in publications, reports, web pages, and other research outputs, only if they agree to preserve the confidentiality of the information as requested in this form.
- I give permission for the questionnaire data that I provide to be deposited in the Qualtrics system so it can be used for future research and learning

So that the information you provide can be used legally by the researchers

- I agree to assign the copyright I hold in any materials generated as part of this project to The University of Sheffield.

Do you wish to continue? To acknowledge that you have read and understood this information and would like to continue with the research study, please click on “I agree”.



I agree



No, thank you

Project contact details for further information:

Principal Researcher: Ian Johnson (ijohnson1@sheffield.ac.uk)

Supervisor and Head of Department: Professor Glenn Waller (g.waller@sheffield.ac.uk)

Clinical Psychology Unit

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S1 2LT

dclinpsy@sheffield.ac.uk

[Note that following consent, participants were asked to generate and make a record of a unique ID code, which was stored against their data. This ID code was be required in the event that they wished their data to be withdrawn from the study.]

Appendix D: Debrief Information

What's important in therapy? Comparing the views of those who have received and delivered CBT.

Thank you for taking part in this research.

The aim of this research is to explore people's beliefs about which parts of therapy are more important than others. We are specifically interested in the following:

The beliefs of those who have received therapy, to see if their beliefs are similar or different to those of therapists. The beliefs of people who deliver therapy (i.e. therapists), as what they believe to be important is likely to impact the therapy they deliver. Whether therapists are able to accurately predict which parts of CBT people who have received therapy believe to be important. Whether believing some parts of therapy to be more important than others is associated with specific characteristics or demographic factors.

You will need to provide us with your unique ID code if you wish to withdraw your data from the study. You are able to withdraw your data up to two weeks after study completion.

To withdraw your data, or ask any further questions regarding the study, please contact the principal researcher (details given below). If you wish to withdraw your data, remember to quote your unique ID code in your email, as this allows your data to be identified. This code should consist of the first two letters of your mother's surname, the day of the month that you were born (01 - 31) and the last two letters of your own first name.

Project contact details for further information:

Principal Researcher: Ian Johnson (ijohnson1@sheffield.ac.uk)

Supervisor and Head of Department: Professor Glenn Waller
(g.waller@sheffield.ac.uk)

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Appendix E: Study Advertisements

Online advert for service users:

Email subject head / title of online post:

What's important in therapy? Research study for people who have had Cognitive Behavioural Therapy (CBT).

Text of email / online post:

What's important in therapy? Research study for people who have had Cognitive Behavioural Therapy (CBT).

I am looking for people who have had Cognitive Behavioural Therapy (CBT) therapy in the last 2 years to take part in a research project. Participating will help us to understand your views and preferences for CBT and could help us to improve the delivery of CBT in the future.

Cognitive Behavioural Therapy is a talking therapy that aims to improve how people feel and reduce distress and mental health difficulties. Cognitive Behavioural Therapy involves helping people challenge and change their patterns of thinking and/or behaviour.

The research project will examine people's beliefs regarding the importance of different parts of Cognitive Behavioural Therapy. Participation will involve completing some online questionnaires and will take approximately 10 minutes. The ethics of this research has been reviewed and approved by The University of Sheffield's Research Ethics Committee.

If you are interested, please could you click on the link below:

[Online Qualtrics link to information sheet, consent form, screening questionnaire, study questionnaire and debrief information]

Please also pass this message on to anyone else who you think may be willing to participate.

Thank you very much for your time,

Ian Johnson

Trainee Clinical Psychologist

Online advert for CBT therapists:

Email subject head:

What's important in therapy? Research study for therapists who use CBT

Text of email / online post:

What's important in therapy? Research study for therapists who use CBT

I am looking for people who deliver CBT therapy to take part in a research project. It is well established that CBT requires a balance of different skills and methods.

Participating will help us to understand your views and preferences for CBT and could help us to improve the delivery of CBT in the future.

We are interested in your experience and opinions regarding the balance of those components that works best. Participation will involve completing some online questionnaires and will take approximately 15 minutes. The ethics of this research has been reviewed and approved by The University of Sheffield's Research Ethics Committee.

If you are interested, please could you click on the link below:

[Online Qualtrics link to information sheet, consent form, screening questionnaire, study questionnaire and debrief information]

Please also pass this message on to any colleagues who you think may be willing to participate.

Thank you very much for your time,

Ian Johnson

Trainee Clinical Psychologist

University of Sheffield

Supervised by Professor Glenn Waller

University of Sheffield

Appendix F: Screening Questionnaires

Service users screening questionnaire:

Please complete the following questions to determine your suitability for this study:

	Yes	No
I have received at least one course of individual (one-to-one) cognitive behavioural therapy (CBT) within the previous 2 years.	<input type="checkbox"/>	<input type="checkbox"/>
I completed the full course of this therapy (i.e. I did not drop out of therapy before its completion).	<input type="checkbox"/>	<input type="checkbox"/>
I was told that CBT was the main focus of this therapy, rather than another type of therapy with CBT elements.	<input type="checkbox"/>	<input type="checkbox"/>

Therapists screening questionnaire:

Please complete the following questions to determine your suitability for this study:

	Yes	No
I have routinely delivered individual (one-to-one) cognitive behavioural therapy (CBT) within the previous 2 years.	<input type="checkbox"/>	<input type="checkbox"/>
CBT was the main focus of this therapy, rather than another type of therapy with CBT elements.	<input type="checkbox"/>	<input type="checkbox"/>
I have received training and qualification(s) in the delivery of CBT	<input type="checkbox"/>	<input type="checkbox"/>

Appendix G: CBT Component Importance Questionnaire for Service Users

Within Cognitive Behavioural Therapy (CBT), people meet with their therapist for a number of sessions. Together, these sessions make up a course of treatment. Throughout treatment, a number of different things will take place.

Below is a list of six common therapy experiences that take place in cognitive behavioural therapy (CBT). You may have experienced these when meeting with your therapist for your course of CBT treatment.

Please rate how important you believe each experience to be in order for therapy to have successful results. Please rate the importance of each item **during the first part of cognitive behavioural therapy** (i.e. within the first third of a course of treatment).

Please give an importance rating for each experience, from 'No importance' to 'Crucial importance'

	(No importance)	(Very low importance)	(Low importance)	(Moderate importance)	(High importance)	(Very high importance)	(Crucial importance)
The therapist and service user jointly agreeing upon shared goals for therapy (e.g. agreeing upon what the service user would like to get from therapy and/or how they would like things to be different by the end of therapy)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The use of techniques to help service users notice and change patterns of behaviour they find unhelpful or troubling (e.g. keeping a weekly diary of activities, planning new activities and noting how they impact mood, completing an anxiety-provoking experience to see how distressing this is, stopping previous unhelpful or troubling behaviours/actions and using relaxation techniques and/or controlled breathing)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The therapist and service user jointly agreeing upon shared tasks for treatment (e.g. planning out specific activities that are needed to reach goals)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The use of techniques to help service users identify and change patterns of thinking they find unhelpful or troubling (e.g. keeping a record of negative or distressing thoughts, considering the evidence for and against thoughts, thinking about more positive alternative thoughts, rating self and others using scales and/or using charts to decide how responsibility for events may be shared)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The therapist and service user developing and maintaining a positive emotional bond (e.g. development of mutual trust, respect and/or understanding between the therapist and service user)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The therapist and service user discussing and setting homework for the service user to carry out between therapy sessions (e.g. the use of previously mentioned techniques to notice and change patterns of behaviour or thinking outside of therapy)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Now rate how important you believe each experience to be **during the middle part of cognitive behavioural therapy** (i.e. within the middle third of a course of treatment)

	(No importance)	(Very low importance)	(Low importance)	(Moderate importance)	(High importance)	(Very high importance)	(Crucial importance)
The therapist and service user jointly agreeing upon shared goals for therapy (e.g. agreeing upon what the service user would like to get from therapy and/or how they would like things to be different by the end of therapy)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The use of techniques to help service users notice and change patterns of behaviour they find unhelpful or troubling (e.g. keeping a weekly diary of activities, planning new activities and noting how they impact mood, completing an anxiety-provoking experience to see how distressing this is, stopping previous unhelpful or troubling behaviours/actions and using relaxation techniques and/or controlled breathing)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The therapist and service user jointly agreeing upon shared tasks for treatment (e.g. planning out specific activities that are needed to reach goals)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The use of techniques to help service users identify and change patterns of thinking they find unhelpful or troubling (e.g. keeping a record of negative or distressing thoughts, considering the evidence for and against thoughts, thinking about more positive alternative thoughts, rating self and others using scales and/or using charts to decide how responsibility for events may be shared)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The therapist and service user developing and maintaining a positive emotional bond (e.g. development of mutual trust, respect and/or understanding between the therapist and service user)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The therapist and service user discussing and setting homework for the service user to carry out between therapy sessions (e.g. the use of previously mentioned techniques to notice and change patterns of behaviour or thinking outside of therapy)

☐ ☐ ☐ ☐ ☐ ☐ ☐

Now rate how important you believe each experience to be **during the latter part of cognitive behavioural therapy (i.e. within the final third of a course of treatment)**

	(No importance)	(Very low importance)	(Low importance)	(Moderate importance)	(High importance)	(Very high importance)	(Crucial importance)
The therapist and service user jointly agreeing upon shared goals for therapy (e.g. agreeing upon what the service user would like to get from therapy and/or how they would like things to be different by the end of therapy)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The use of techniques to help service users notice and change patterns of behaviour they find unhelpful or troubling (e.g. keeping a weekly diary of activities, planning new activities and noting how they impact mood, completing an anxiety-provoking experience to see how distressing this is, stopping previous unhelpful or troubling behaviours/actions and using relaxation techniques and/or controlled breathing)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The therapist and service user jointly agreeing upon shared tasks for treatment (e.g. planning out specific activities that are needed to reach goals)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The use of techniques to help service users identify and change patterns of thinking they find unhelpful or troubling (e.g. keeping a record of negative or distressing thoughts, considering the evidence for and against thoughts, thinking about more positive alternative thoughts, rating self and others using scales and/or using charts to decide how responsibility for events may be shared)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The therapist and service user developing and maintaining a positive emotional bond (e.g. development of mutual trust, respect and/or understanding between the therapist and service user)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The therapist and service user discussing and setting homework for the service user to carry out between therapy sessions (e.g. the use of previously mentioned techniques to notice and change patterns of behaviour or thinking outside of therapy)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Finally, please provide the following demographic information

[Insert demographic questions; see Appendix J]

Appendix H: CBT Component Importance Questionnaire for Therapists

Below is a list of six common therapy experiences that take place in cognitive behavioural therapy (CBT).

Please rate how important you believe each experience to be in order for therapy to have successful results. Please rate the importance of each item during the first part of cognitive behavioural therapy (i.e. within the first third of a course of treatment).

Please give an importance rating for each experience, from 'No importance' to 'Crucial importance'

	(No importance)	(Very low importance)	(Low importance)	(Moderate importance)	(High importance)	(Very high importance)	(Crucial importance)
The therapist and service user jointly agreeing upon shared goals for therapy (e.g. agreeing upon what the service user would like to get from therapy and/or how they would like things to be different by the end of therapy)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The use of techniques to help service users notice and change patterns of behaviour they find unhelpful or troubling (e.g. keeping a weekly diary of activities, planning new activities and noting how they impact mood, completing an anxiety-provoking experience to see how distressing this is, stopping previous unhelpful or troubling behaviours/actions and using relaxation techniques and/or controlled breathing)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The therapist and service user jointly agreeing upon shared tasks for treatment (e.g. planning out specific activities that are needed to reach goals)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The use of techniques to help service users identify and change patterns of thinking they find unhelpful or troubling (e.g. keeping a record of negative or distressing thoughts, considering the evidence for and against thoughts, thinking about more positive alternative thoughts, rating self and others using scales and/or using charts to decide how responsibility for events may be shared)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The therapist and service user developing and maintaining a positive emotional bond (e.g. development of mutual trust, respect and/or understanding between the therapist and service user)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The therapist and service user discussing and setting homework for the service user to carry out between therapy sessions (e.g. the use of previously mentioned techniques to notice and change patterns of behaviour or thinking outside of therapy)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Now rate how important you believe each experience to be **during the middle part of cognitive behavioural therapy** (i.e. within the middle third of a course of treatment)

	(No importance)	(Very low importance)	(Low importance)	(Moderate importance)	(High importance)	(Very high importance)	(Crucial importance)
The therapist and service user jointly agreeing upon shared goals for therapy (e.g. agreeing upon what the service user would like to get from therapy and/or how they would like things to be different by the end of therapy)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The use of techniques to help service users notice and change patterns of behaviour they find unhelpful or troubling (e.g. keeping a weekly diary of activities, planning new activities and noting how they impact mood, completing an anxiety-provoking experience to see how distressing this is, stopping previous unhelpful or troubling behaviours/actions and using relaxation techniques and/or controlled breathing)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The therapist and service user jointly agreeing upon shared tasks for treatment (e.g. planning out specific activities that are needed to reach goals)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The use of techniques to help service users identify and change patterns of thinking they find unhelpful or troubling (e.g. keeping a record of negative or distressing thoughts, considering the evidence for and against thoughts, thinking about more positive alternative thoughts, rating self and others using scales and/or using charts to decide how responsibility for events may be shared)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The therapist and service user developing and maintaining a positive emotional bond (e.g. development of mutual trust, respect and/or understanding between the therapist and service user)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The therapist and service user discussing and setting homework for the service user to carry out between therapy sessions (e.g. the use of previously mentioned techniques to notice and change patterns of behaviour or thinking outside of therapy)

☐ ☐ ☐ ☐ ☐ ☐ ☐

Now rate how important you believe each experience to be **during the latter part of cognitive behavioural therapy (i.e. within the final third of a course of treatment)**

	(No importance)	(Very low importance)	(Low importance)	(Moderate importance)	(High importance)	(Very high importance)	(Crucial importance)
The therapist and service user jointly agreeing upon shared goals for therapy (e.g. agreeing upon what the service user would like to get from therapy and/or how they would like things to be different by the end of therapy)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The use of techniques to help service users notice and change patterns of behaviour they find unhelpful or troubling (e.g. keeping a weekly diary of activities, planning new activities and noting how they impact mood, completing an anxiety-provoking experience to see how distressing this is, stopping previous unhelpful or troubling behaviours/actions and using relaxation techniques and/or controlled breathing)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The therapist and service user jointly agreeing upon shared tasks for treatment (e.g. planning out specific activities that are needed to reach goals)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The use of techniques to help service users identify and change patterns of thinking they find unhelpful or troubling (e.g. keeping a record of negative or distressing thoughts, considering the evidence for and against thoughts, thinking about more positive alternative thoughts, rating self and others using scales and/or using charts to decide how responsibility for events may be shared)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The therapist and service user developing and maintaining a positive emotional bond (e.g. development of mutual trust, respect and/or understanding between the therapist and service user)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The therapist and service user discussing and setting homework for the service user to carry out between therapy sessions (e.g. the use of previously mentioned techniques to notice and change patterns of behaviour or thinking outside of therapy)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Next we want to know what you believe service users think is important in CBT.

Please rate how important you believe **service users who have received CBT** would consider each experience to be for successful therapy results, **during the first part of cognitive behavioural therapy** (i.e., within the first third of a course of treatment).

	(No importance)	(Very low importance)	(Low importance)	(Moderate importance)	(High importance)	(Very high importance)	(Crucial importance)
The therapist and service user jointly agreeing upon shared goals for therapy (e.g. agreeing upon what the service user would like to get from therapy and/or how they would like things to be different by the end of therapy)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The use of techniques to help service users notice and change patterns of behaviour they find unhelpful or troubling (e.g. keeping a weekly diary of activities, planning new activities and noting how they impact mood, completing an anxiety-provoking experience to see how distressing this is, stopping previous unhelpful or troubling behaviours/actions and using relaxation techniques and/or controlled breathing)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The therapist and service user jointly agreeing upon shared tasks for treatment (e.g. planning out specific activities that are needed to reach goals)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The use of techniques to help service users identify and change patterns of thinking they find unhelpful or troubling (e.g. keeping a record of negative or distressing thoughts, considering the evidence for and against thoughts, thinking about more positive alternative thoughts, rating self and others using scales and/or using charts to decide how responsibility for events may be shared)

☐ ☐ ☐ ☐ ☐ ☐ ☐

The therapist and service user developing and maintaining a positive emotional bond (e.g. development of mutual trust, respect and/or understanding between the therapist and service user)

☐ ☐ ☐ ☐ ☐ ☐ ☐

The therapist and service user discussing and setting homework for the service user to carry out between therapy sessions (e.g. the use of previously mentioned techniques to notice and change patterns of behaviour or thinking outside of therapy)

☐ ☐ ☐ ☐ ☐ ☐ ☐

Please rate how important you believe **service users who have received CBT** would consider each experience to be for successful therapy results, **during the middle part of cognitive behavioural therapy** (i.e., within the middle third of a course of treatment).

	(No importance)	(Very low importance)	(Low importance)	(Moderate importance)	(High importance)	(Very high importance)	(Crucial importance)
The therapist and service user jointly agreeing upon shared goals for therapy (e.g. agreeing upon what the service user would like to get from therapy and/or how they would like things to be different by the end of therapy)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The use of techniques to help service users notice and change patterns of behaviour they find unhelpful or troubling (e.g. keeping a weekly diary of activities, planning new activities and noting how they impact mood, completing an anxiety-provoking experience to see how distressing this is, stopping previous unhelpful or troubling behaviours/actions and using relaxation techniques and/or controlled breathing)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The therapist and service user jointly agreeing upon shared tasks for treatment (e.g. planning out specific activities that are needed to reach goals)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The use of techniques to help service users identify and change patterns of thinking they find unhelpful or troubling (e.g. keeping a record of negative or distressing thoughts, considering the evidence for and against thoughts, thinking about more positive alternative thoughts, rating self and others using scales and/or using charts to decide how responsibility for events may be shared)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The therapist and service user developing and maintaining a positive emotional bond (e.g. development of mutual trust, respect and/or understanding between the therapist and service user)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The therapist and service user discussing and setting homework for the service user to carry out between therapy sessions (e.g. the use of previously mentioned techniques to notice and change patterns of behaviour or thinking outside of therapy)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Now please rate how important you believe **service users who have received CBT** would consider each experience to be, **during the latter part of cognitive behavioural therapy** (i.e., within the final third of a course of treatment).

	(No importance)	(Very low importance)	(Low importance)	(Moderate importance)	(High importance)	(Very high importance)	(Crucial importance)
The therapist and service user jointly agreeing upon shared goals for therapy (e.g. agreeing upon what the service user would like to get from therapy and/or how they would like things to be different by the end of therapy)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The use of techniques to help service users notice and change patterns of behaviour they find unhelpful or troubling (e.g. keeping a weekly diary of activities, planning new activities and noting how they impact mood, completing an anxiety-provoking experience to see how distressing this is, stopping previous unhelpful or troubling behaviours/actions and using relaxation techniques and/or controlled breathing)

○ ○ ○ ○ ○ ○ ○

The therapist and service user jointly agreeing upon shared tasks for treatment (e.g. planning out specific activities that are needed to reach goals)

○ ○ ○ ○ ○ ○ ○

The use of techniques to help service users identify and change patterns of thinking they find unhelpful or troubling (e.g. keeping a record of negative or distressing thoughts, considering the evidence for and against thoughts, thinking about more positive alternative thoughts, rating self and others using scales and/or using charts to decide how responsibility for events may be shared)

○ ○ ○ ○ ○ ○ ○

The therapist and service user developing and maintaining a positive emotional bond (e.g. development of mutual trust, respect and/or understanding between the therapist and service user)

○ ○ ○ ○ ○ ○ ○

The therapist and service user discussing and setting homework for the service user to carry out between therapy sessions (e.g. the use of previously mentioned techniques to notice and change patterns of behaviour or thinking outside of therapy)

○ ○ ○ ○ ○ ○ ○

Now, we would like to ask you a few questions about your own personal style

[Insert the Toronto Empathy Questionnaire (Sprens, McKinnon, Mar, & Levine, 2009; see Appendix H)]

[Insert the Intolerance of Uncertainty Scale Short Form (Carleton, Norton, & Asmundson, 2007; see Appendix I)]

[Insert demographic questions; see Appendix J]

Appendix I: The Toronto Empathy Questionnaire

[Removed for copyright reasons]

Appendix J: The Intolerance of Uncertainty Scale – Short Form

[Removed for copyright reasons]

Appendix K: Demographic and CBT Improvement Questions

Demographic and CBT improvement questions for service users:

Finally, please provide the following demographic information:

Your gender:

- ☐ Male
- ☐ Female
- ☐ Other
- ☐ Prefer Not To Say

Your age:

What impact do you believe CBT had on your symptoms/difficulties?

- ☐ CBT made my symptoms/difficulties worse
- ☐ CBT had no impact on my symptoms/difficulties
- ☐ CBT helped my symptoms/difficulties to improve a little
- ☐ CBT helped my symptoms/difficulties to improve moderately
- ☐ CBT helped my symptoms/difficulties to improve a large amount
- ☐ CBT helped me to recover from my symptoms/difficulties

Demographic questions for therapists:

Finally, please provide the following demographic information:

Your gender:

- ☐ Male
- ☐ Female
- ☐ Other
- ☐ Prefer Not To Say

Your age:

The number of years' experience you have delivering CBT:

Your professional qualifications (select all that apply):

- ☐ Doctorate in clinical psychology
- ☐ Doctorate or qualification in counselling psychology
- ☐ Improving Access to Psychological Therapies (IAPT) qualification
- ☐ Post-graduate diploma/certificate in CBT
- ☐ Other

Appendix L: Normality Data and Plots for Aims One and Two

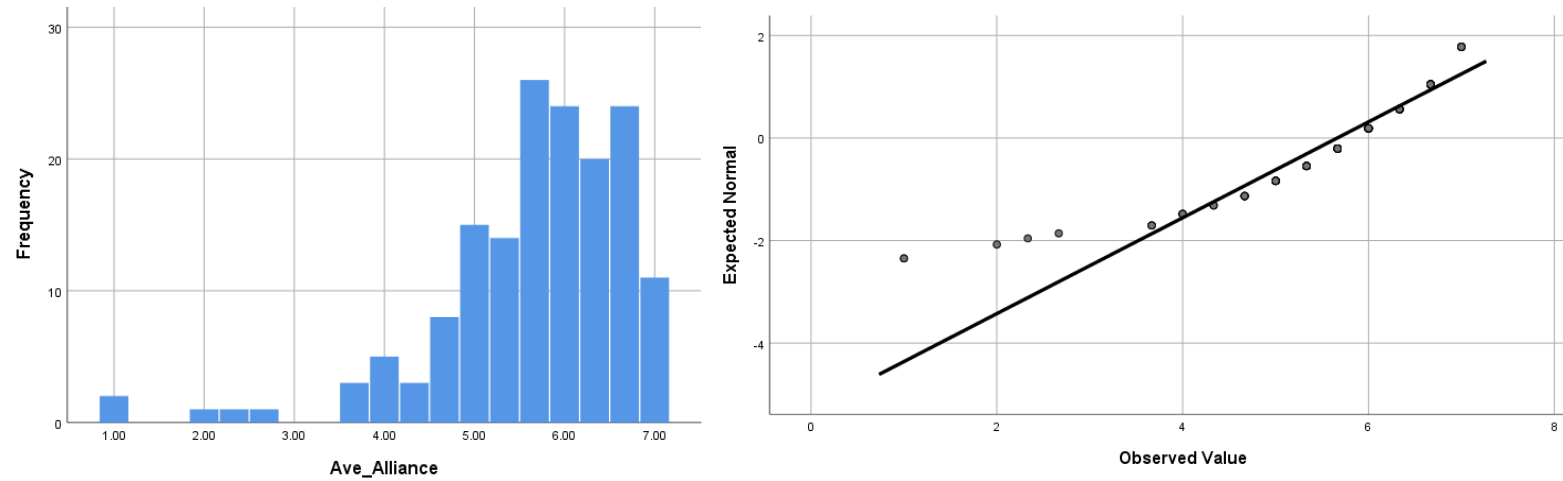
Kolmogorov-Smirnov, skewness and kurtosis statistics for alliance and adherence importance ratings:

Stage of therapy	Alliance / adherence	Type of ratings	Kolmogorov-Smirnov statistic	Skewness (Standard error)	Kurtosis (Standard error)
Early therapy	Average alliance importance ratings	Service user self-ratings	0.165**	-1.717 (0.193)	4.528 (0.384)
		Therapist self-ratings	0.154**	-0.956 (0.243)	1.01 (0.481)
		Therapist-predicted service user ratings	0.136**	-0.438 (0.267)	-0.070 (0.529)
	Average adherence importance ratings	Service user self-ratings	0.114**	-0.956 (0.193)	1.584 (0.384)
		Therapist self-ratings	0.127**	-0.432 (0.243)	-0.135 (0.481)
		Therapist-predicted service user ratings	0.118*	0.333 (0.267)	0.040 (0.529)
Mid therapy	Average alliance importance ratings	Service user self-ratings	0.140**	-1.272 (0.201)	2.828 (0.400)
		Therapist self-ratings	0.124**	-.215 (0.251)	-0.903 (0.498)
		Therapist-predicted service user ratings	0.120*	-0.197 (0.274)	0.046 (0.541)
	Average adherence importance ratings	Service user self-ratings	0.103**	-1.159 (0.201)	2.492 (0.400)
		Therapist self-ratings	0.140**	-0.739 (0.251)	-.351 (0.498)
		Therapist-predicted service user ratings	0.130*	-0.262 (0.274)	-0.141 (0.541)

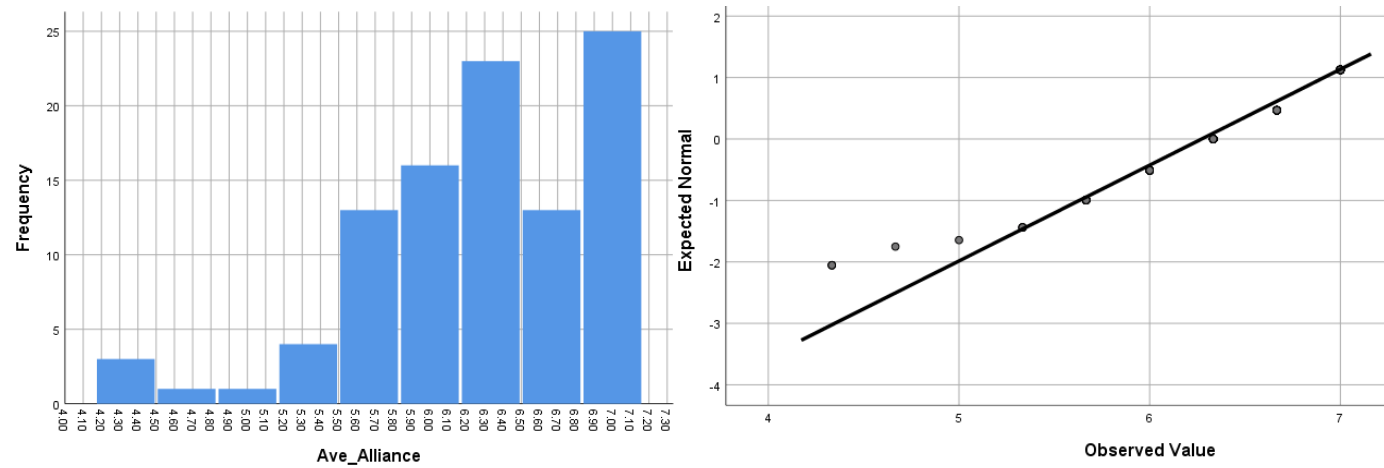
Stage of therapy	Alliance / adherence	Type of ratings	Kolmogorov-Smirnov statistic	Skewness (Standard error)	Kurtosis (Standard error)
Late therapy	Average alliance importance ratings	Service user self-ratings	0.089*	-0.596 (0.205)	0.902 (0.407)
		Therapist self-ratings	0.118*	-0.168 (0.254)	-1.198 (0.503)
		Therapist-predicted service user ratings	0.127*	0.142 (0.274)	-0.404 (0.541)
	Average adherence importance ratings	Service user self-ratings	0.114**	-0.915 (0.205)	1.682 (0.407)
		Therapist self-ratings	0.113*	-0.346 (0.254)	-0.663 (0.503)
		Therapist-predicted service user ratings	0.098	-0.065 (0.274)	-0.649 (0.541)

Key: * = $p < 0.05$, ** = $p \leq 0.001$

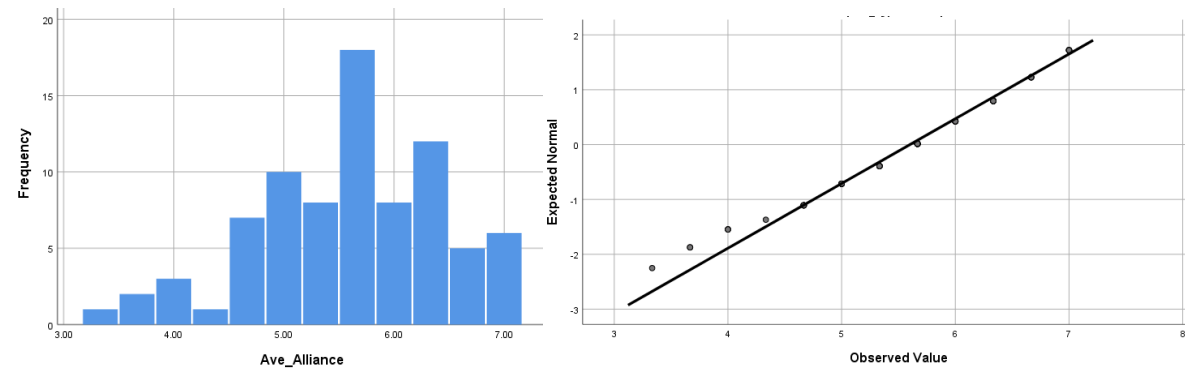
Early therapy, mean alliance importance ratings, service user self-ratings, histogram and Q-Q plot:



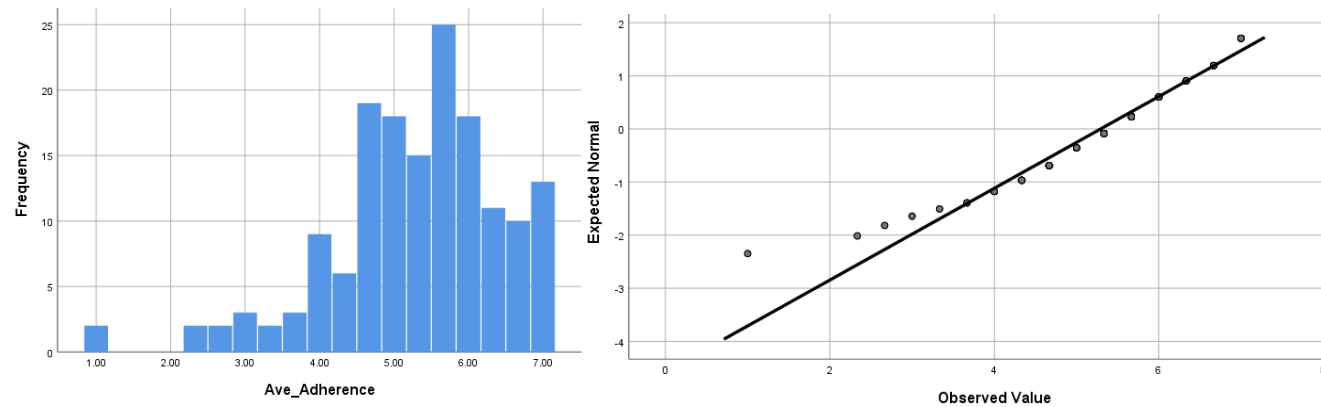
Early therapy, mean alliance importance ratings, therapist self-ratings, histogram and Q-Q plot:



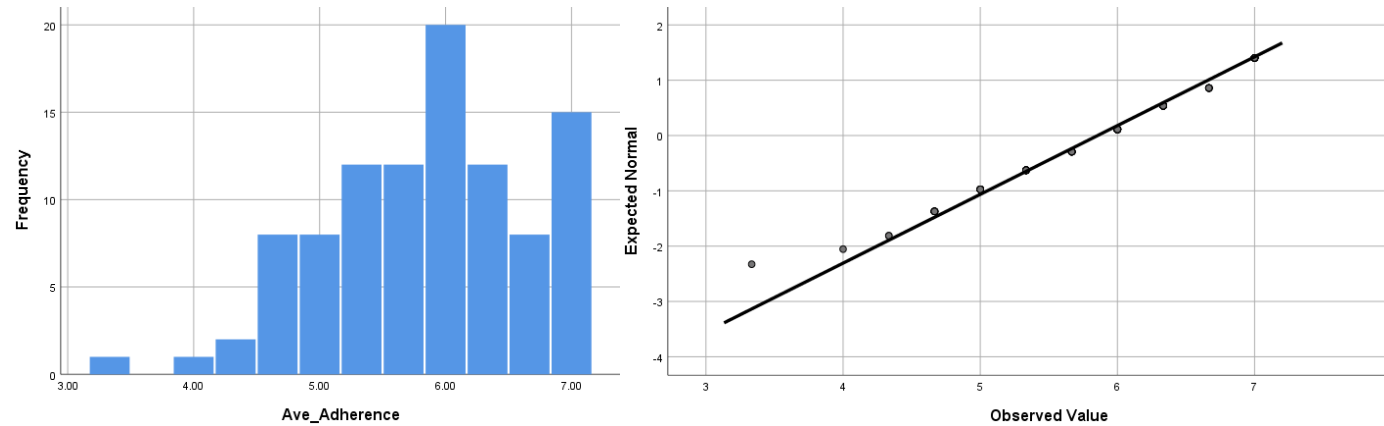
Early therapy, mean alliance importance ratings, therapist-predicted service user ratings, histogram and Q-Q plot:



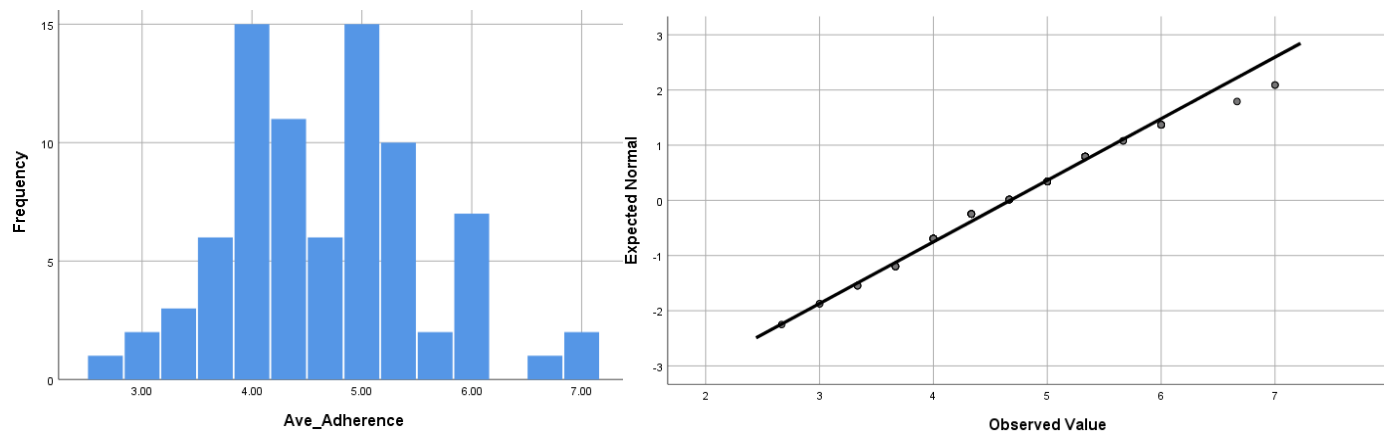
Early therapy, mean adherence importance ratings, service user self-ratings, histogram and Q-Q plot:



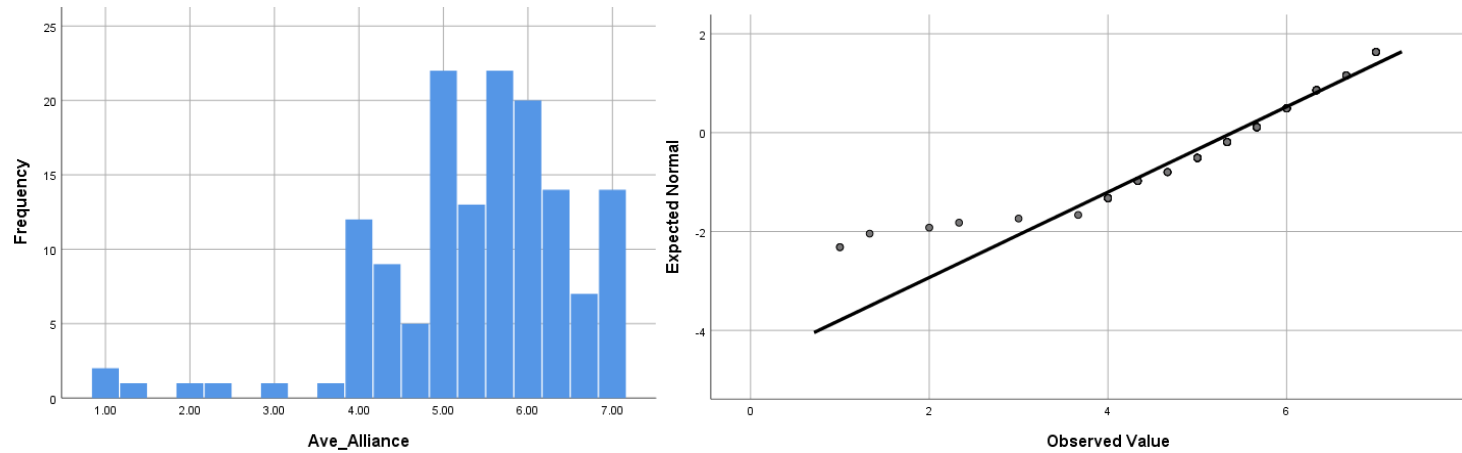
Early therapy, mean adherence importance ratings, therapist self-ratings, histogram and Q-Q plot:



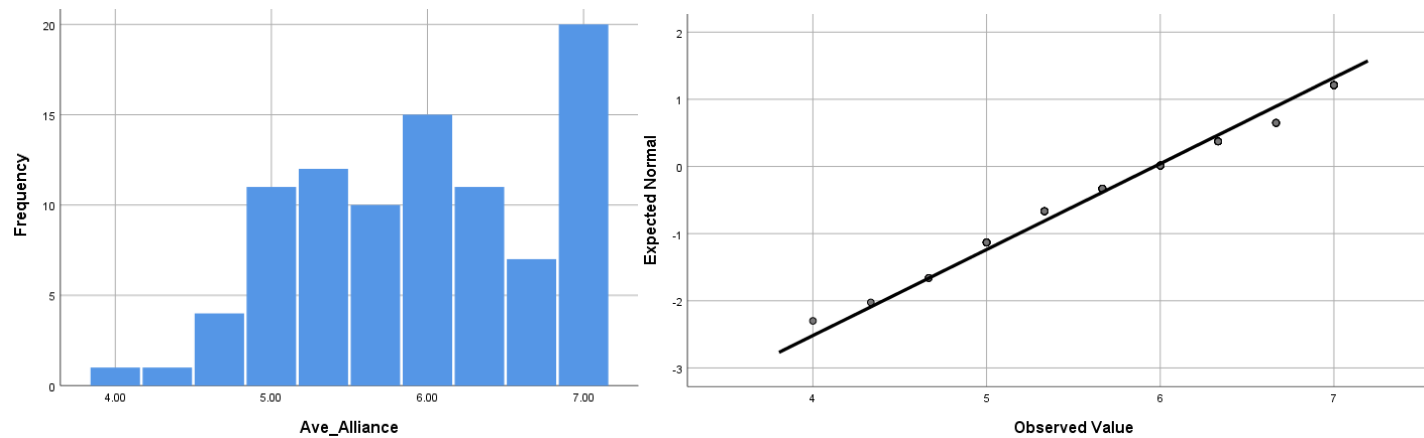
Early therapy, mean adherence importance ratings, therapist-predicted service user ratings, histogram and Q-Q plot:



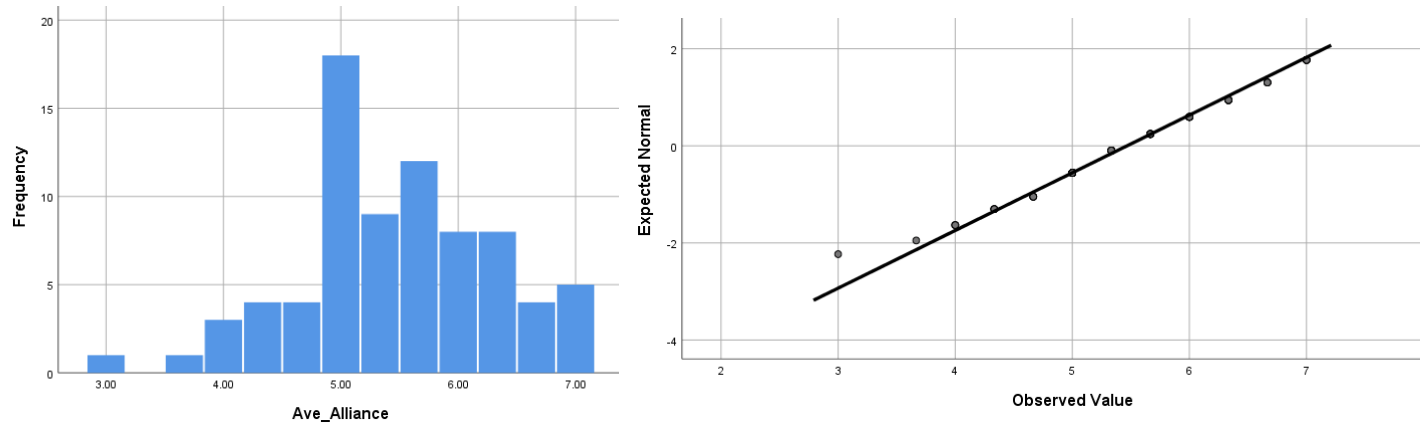
Mid therapy, mean alliance importance ratings, service user self-ratings, histogram and Q-Q plot:



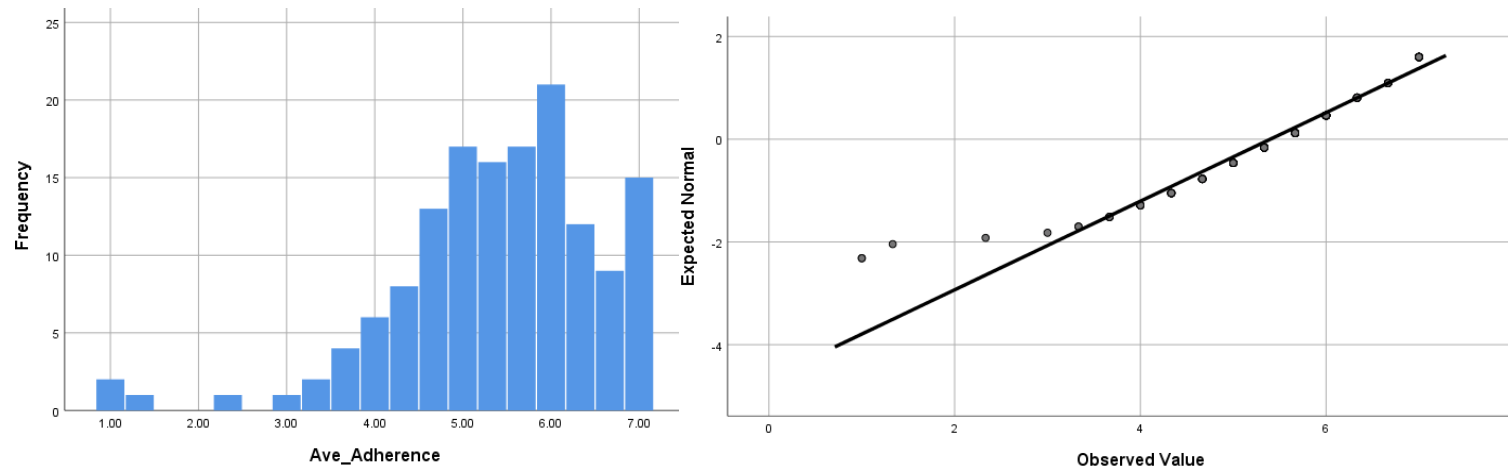
Mid therapy, mean alliance importance ratings, therapist self-ratings, histogram and Q-Q plot:



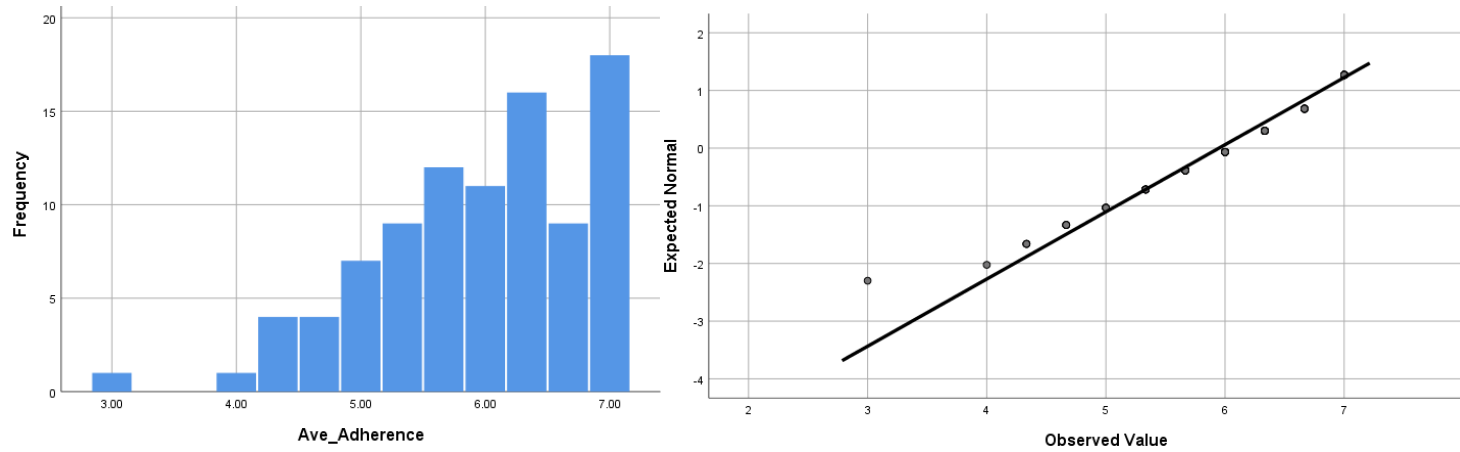
Mid therapy, mean alliance importance ratings, therapist-predicted service user ratings, histogram and Q-Q plot:



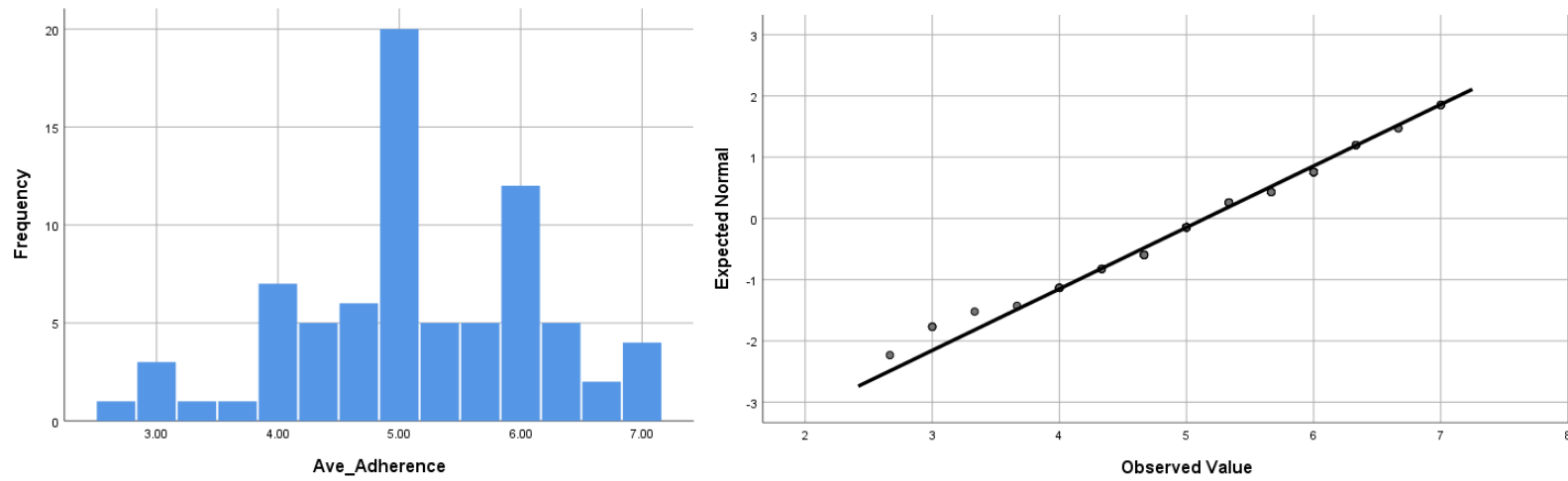
Mid therapy, mean adherence importance ratings, service user self-ratings, histogram and Q-Q plot:



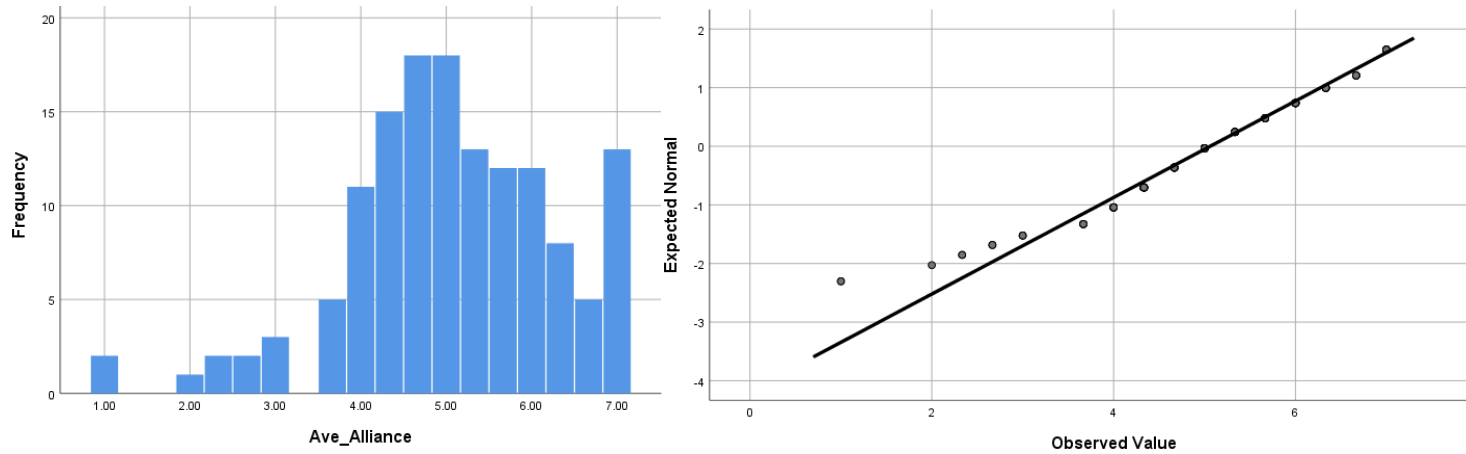
Mid therapy, mean adherence importance ratings, therapist self-ratings, histogram and Q-Q plot:



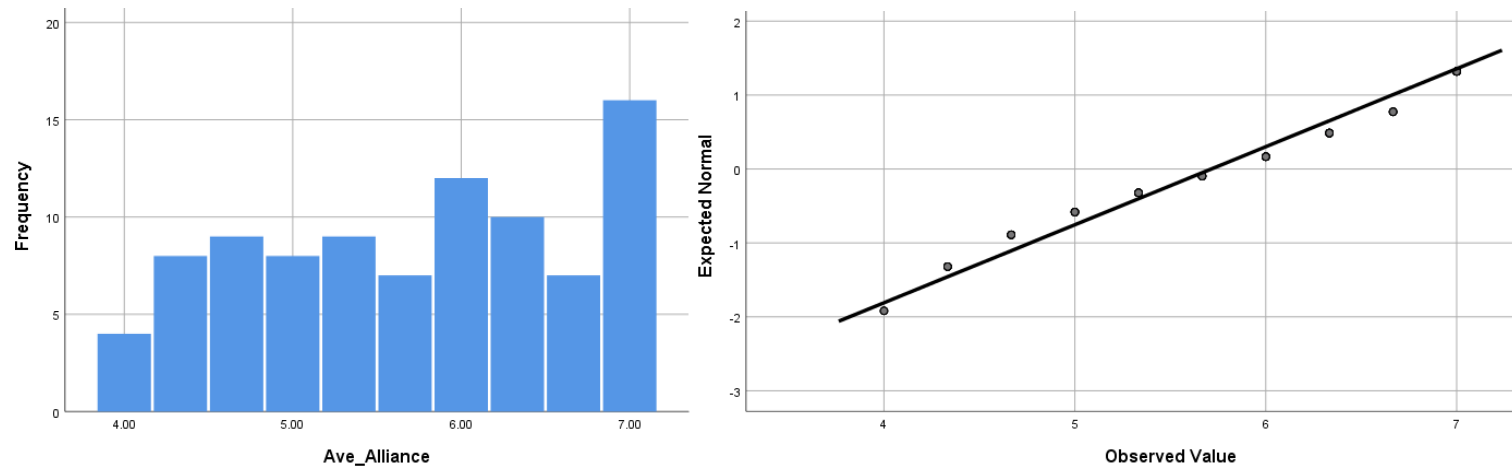
Mid therapy, mean adherence importance ratings, therapist-predicted service user ratings, histogram and Q-Q plot:



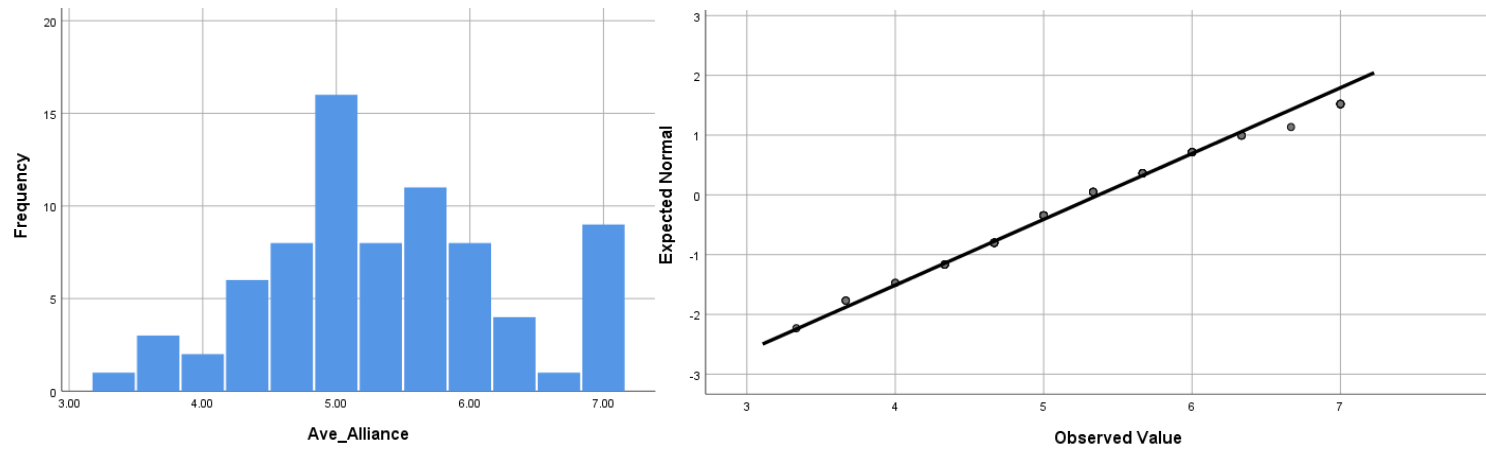
Late therapy, mean alliance importance ratings, service user self-ratings, histogram and Q-Q plot:



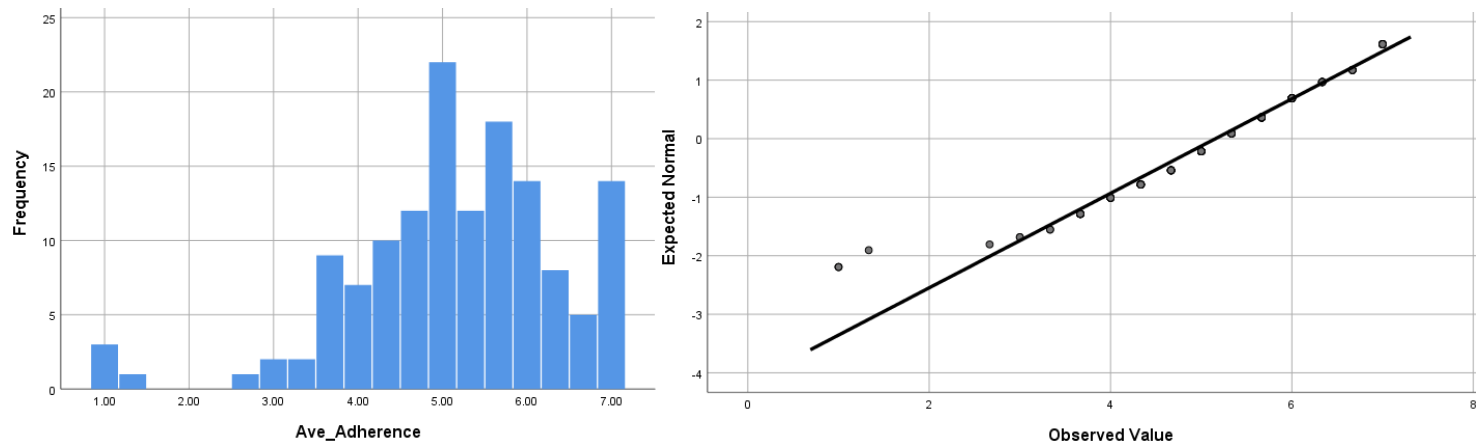
Late therapy, mean alliance importance ratings, therapist self-ratings, histogram and Q-Q plot:



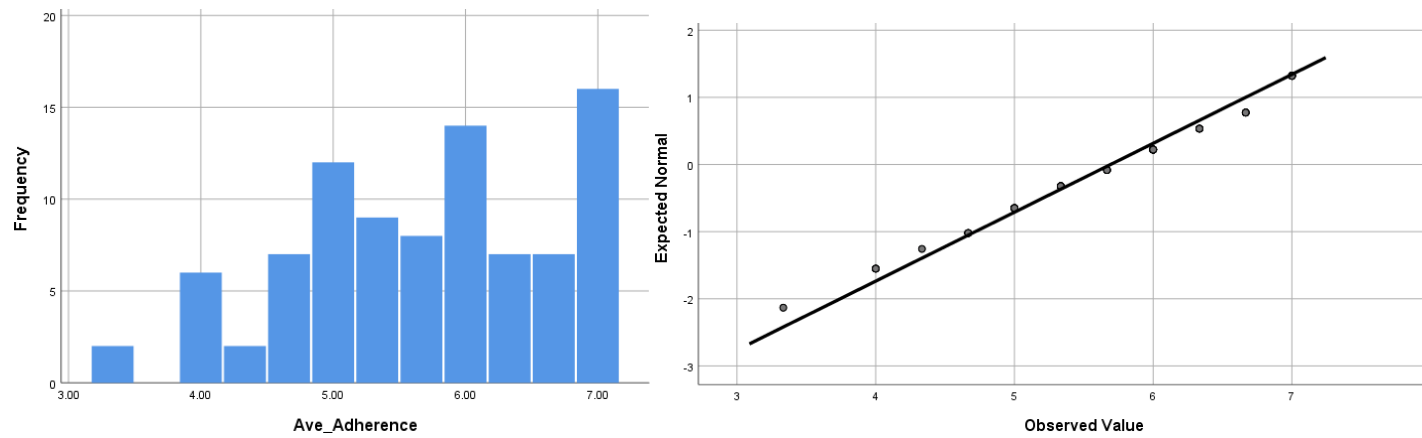
Late therapy, mean alliance importance ratings, therapist-predicted service user ratings, histogram and Q-Q plot:



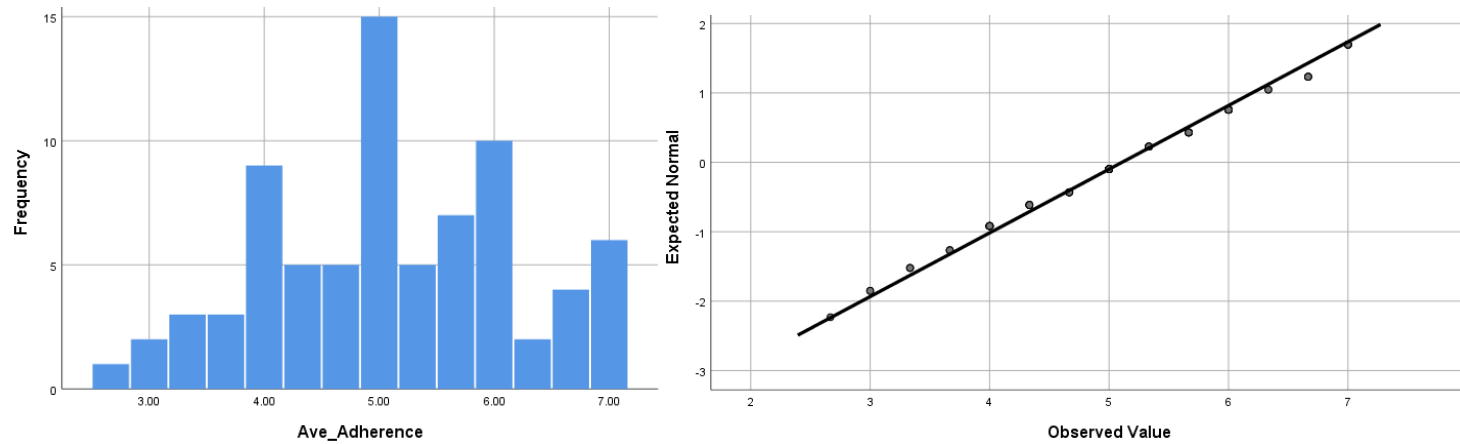
Late therapy, mean adherence importance ratings, service user self-ratings, histogram and Q-Q plot:



Late therapy, mean adherence importance ratings, therapist self-ratings, histogram and Q-Q plot:



Late therapy, mean adherence importance ratings, therapist-predicted service user ratings, histogram and Q-Q plot:



Appendix M: Multicollinearity, Variance, Homoscedacity, Linearity, Residual

Normality and Outlier Data and Plots for Aim Three

Service user data, bivariate Pearson correlations of predictors:

	Mean alliance importance	Mean adherence importance
CBT improvement score	0.201 (p=0.02)	0.310 (p<0.001)
For all correlations, N=140		

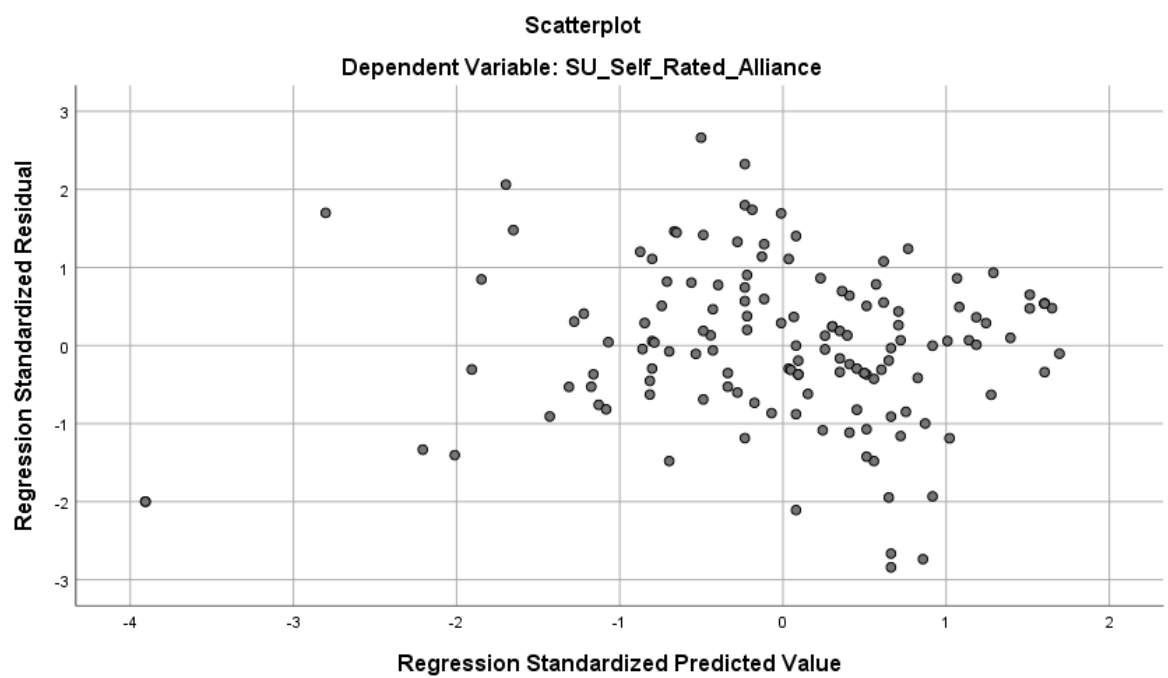
Service user data, collinearity statistics:

Response variable	Predictor variable	Tolerance	Variance inflation factor
Mean alliance importance	Mean adherence	0.96	1.04
	CBT improvement score	0.96	1.04
Mean adherence importance	Mean alliance importance	1	1.01
	CBT improvement score	1	1.01

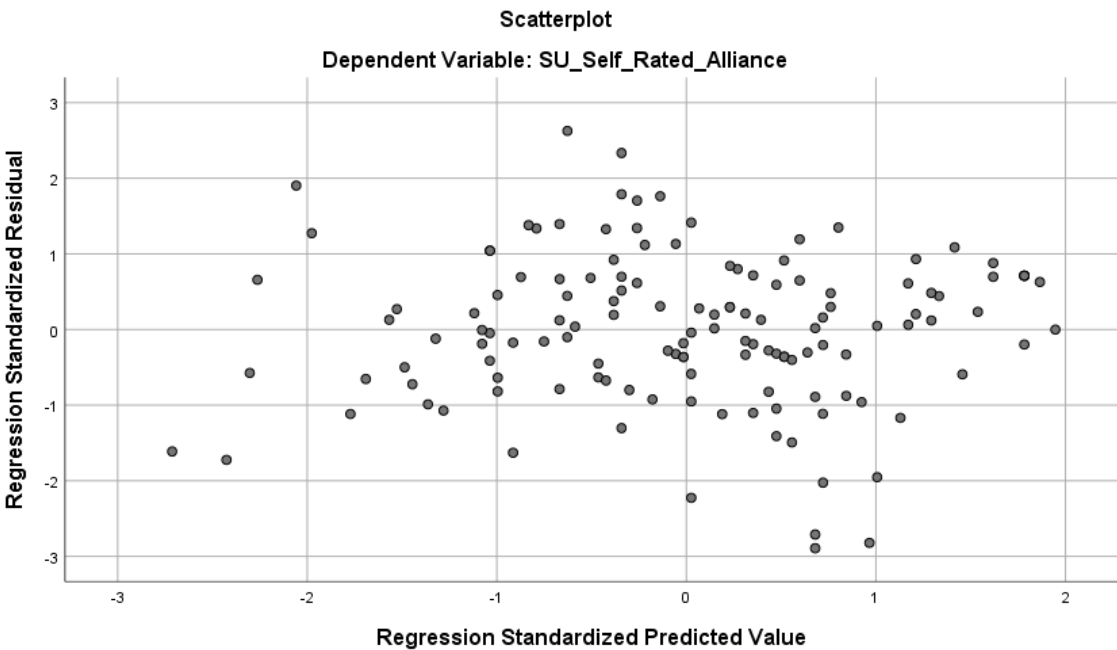
Service user data, descriptive statistics:

Model variable	Range	Mean	Standard deviation	Variance
Mean alliance importance	1-7	5.38	1.02	1.03
Mean adherence importance	1-7	5.28	1.08	1.17
CBT improvement score	1-6	3.74	1.30	1.69

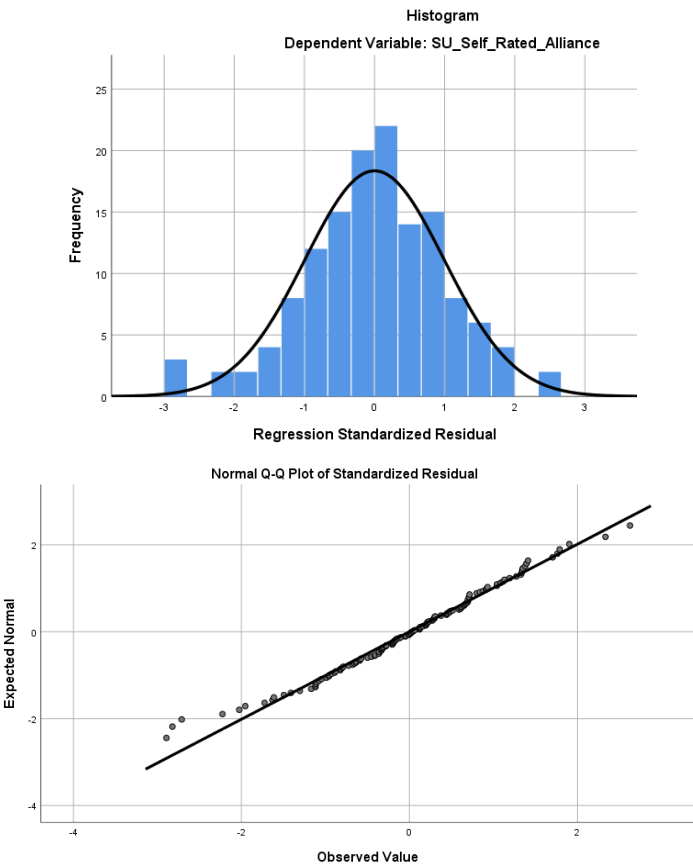
Service user mean alliance importance residual scatterplot:



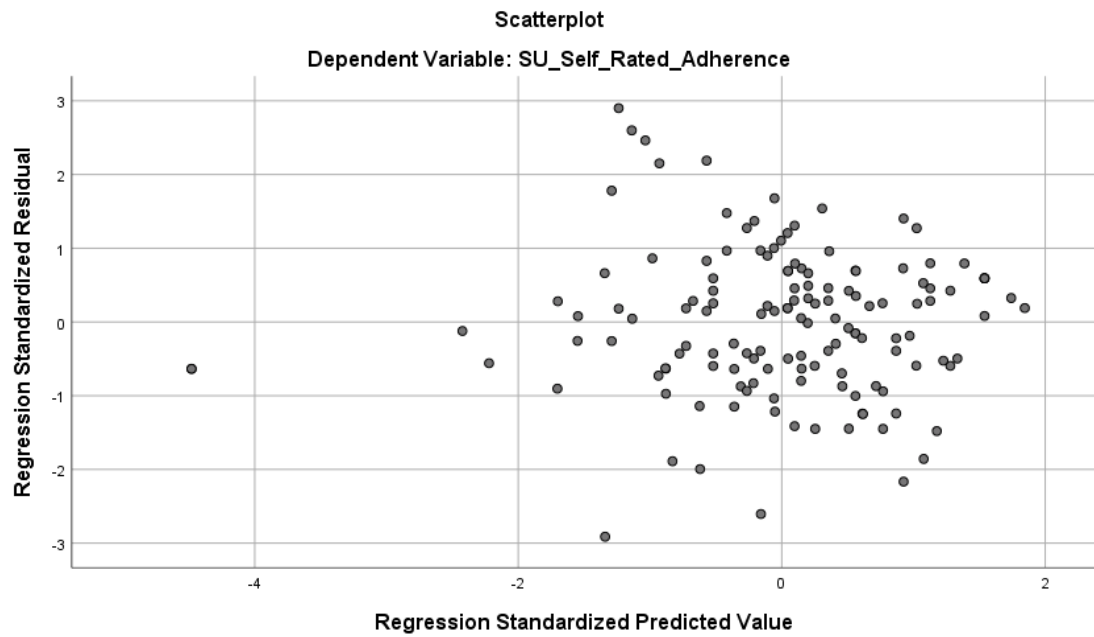
Scatterplot minus three outliers:



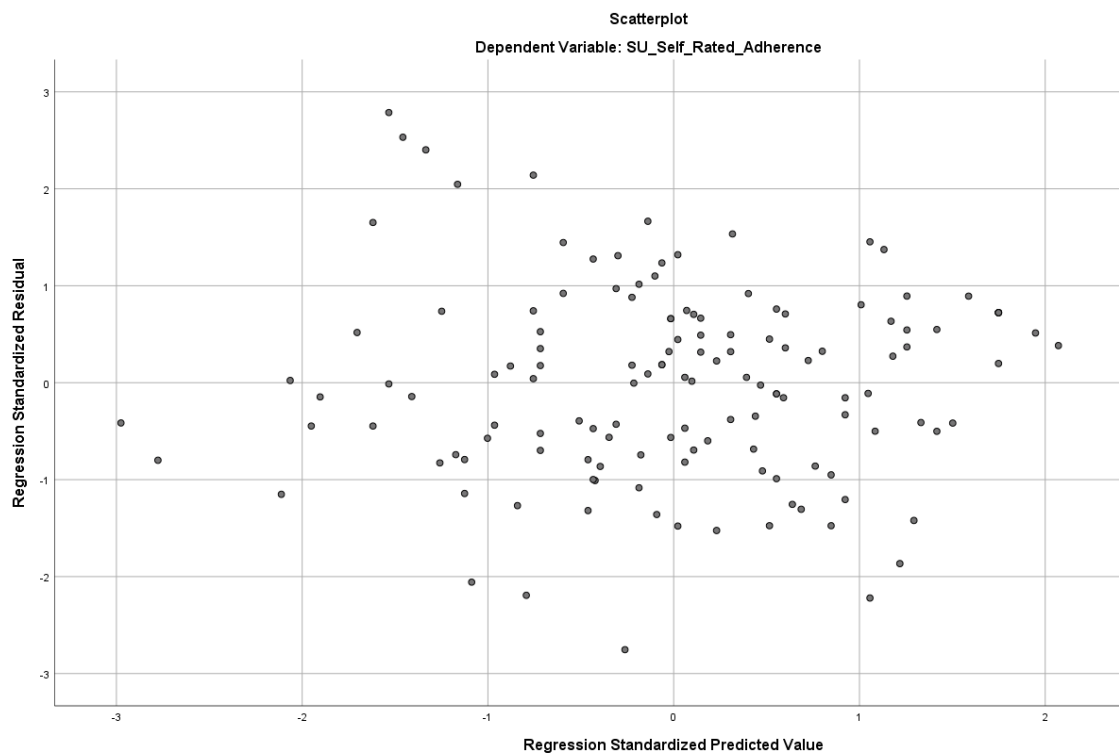
Service user mean alliance importance standardised residual histogram and Q-Q plot:



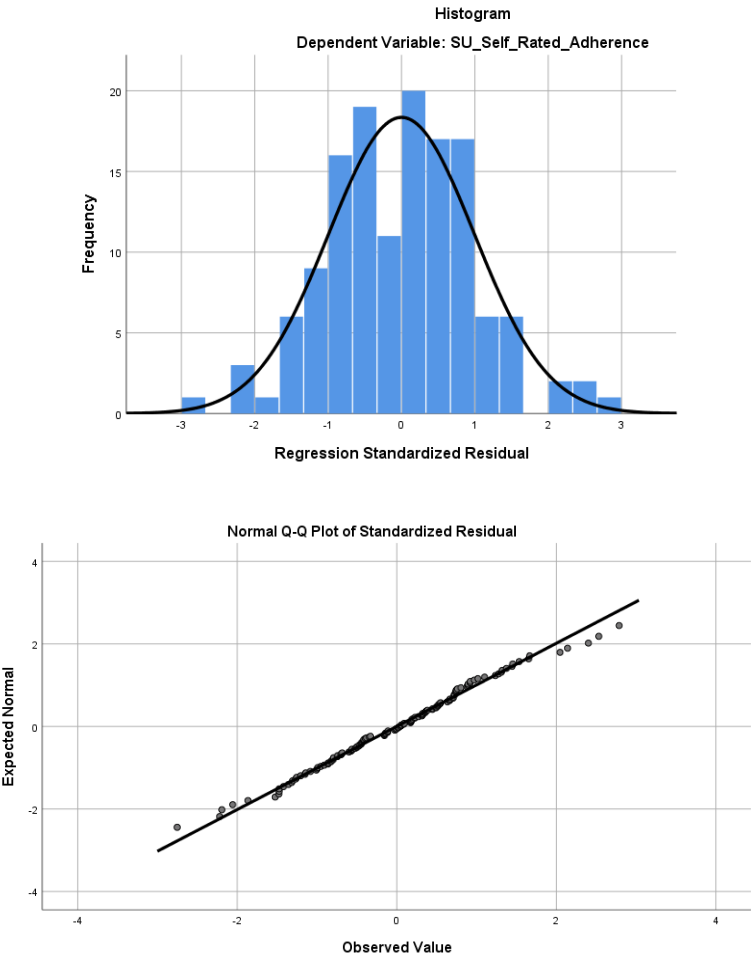
Service user mean adherence importance residual scatterplot:



Scatterplot minus three outliers:



Service user mean adherence importance standardised residual histogram:



Therapist data, bivariate Pearson correlations of predictors:

	TES Total	IUS Total	Years of experience	Age	Gender*	Mean alliance importance	Mean adherence importance
TES Total	-	-	-	-	-	-	-
IUS Total	-0.17 (p=0.16)	-	-	-	-	-	-
Years of experience	-0.13 (p=0.28)	-0.21 (p=0.07)	-	-	-	-	-
Age	-0.50 (p=0.67)	-0.28 (p=0.01)	0.63 (p<0.01)	-	-	-	-
Gender	-0.19 (p=0.10)	0.14 (p=0.23)	0.17 (p=0.14)	0.11 (p=0.35)	-	-	-
Mean alliance importance	0.19 (p=0.11)	-0.27 (p=0.02)	0.12 (p=0.31)	0.14 (p=0.22)	-0.04 (p=0.74)	-	-
Mean adherence importance	-0.19 (p=0.10)	-0.23 (p=0.047)	0.03 (p=0.82)	-0.06 (p=0.61)	0.01 (p=0.94)	0.65 (p<0.01)	-

KEY: TES = Toronto Empathy Scale, IUS = Intolerance of Uncertainty Scale, Gender: 0=female, 1=male; For all correlations, N=140

Therapist data, collinearity statistics:

Response variable	Predictor variable	Tolerance	Variance inflation factor
Mean alliance importance	TES Total	0.90	1.12
	IUS Total	0.81	1.23
	Years of experience	0.58	1.74
	Age	0.56	1.78
	Gender*	0.91	1.10
	Mean adherence importance	0.90	1.12
Mean adherence importance	TES Total	0.90	1.11
	IUS Total	0.82	1.22
	Years of experience	0.58	1.73
	Age	0.58	1.73
	Gender	0.92	1.09
	Mean alliance importance	0.90	1.12
Mean predicted service user alliance importance	TES Total	0.90	1.11
	IUS Total	0.81	1.23
	Years of experience	0.58	1.74
	Age	0.56	1.77
	Gender	0.91	1.10
	Mean adherence importance	0.90	1.12
Mean predicted service user adherence importance	TES Total	0.90	1.11
	IUS Total	0.82	1.22
	Years of experience	0.58	1.73
	Age	0.58	1.73
	Gender	0.92	1.09
	Mean alliance importance	0.90	1.12

KEY: TES = Toronto Empathy Scale, IUS = Intolerance of Uncertainty Scale, Gender:

0=female, 1=male

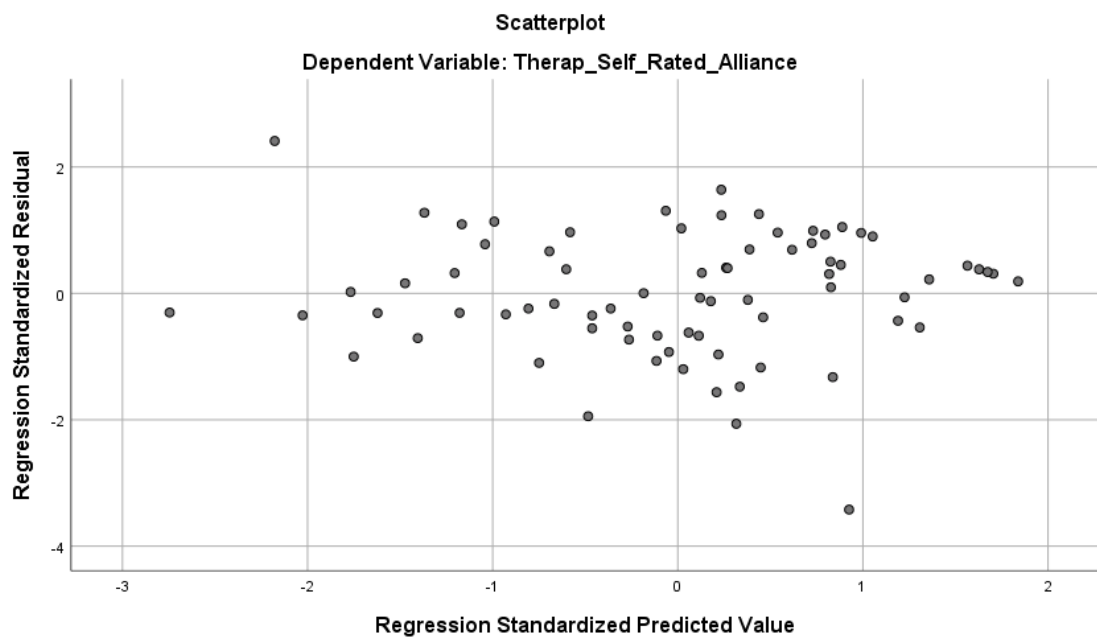
Therapist data, descriptive statistics:

Model variable	Range	Mean	Standard deviation	Variance
Mean alliance importance	4.44-7	5.98	0.73	0.53
Mean adherence importance	3.44-7	5.83	0.79	0.63
Mean predicted service user alliance importance	3.67-7	5.47	0.78	0.62
Mean predicted service user adherence importance	2.67-7	4.97	0.90	0.81
TES total	42-61	50.12	4.89	23.86
IUS total	12-39	21.83	7.03	49.39
Years of experience	2-45	12.61	7.69	59.13
Age	25-73	47.08	11.45	130.99
Gender*	0-1	0.31	0.46	0.22

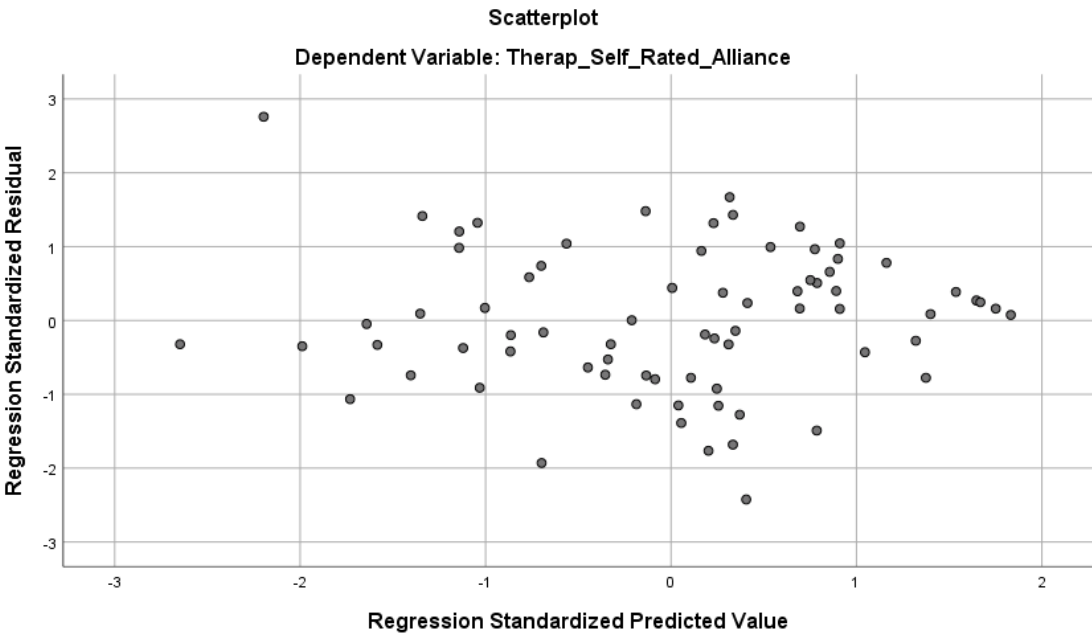
KEY: TES = Toronto Empathy Scale, IUS = Intolerance of Uncertainty Scale, Gender:

0=female, 1=male

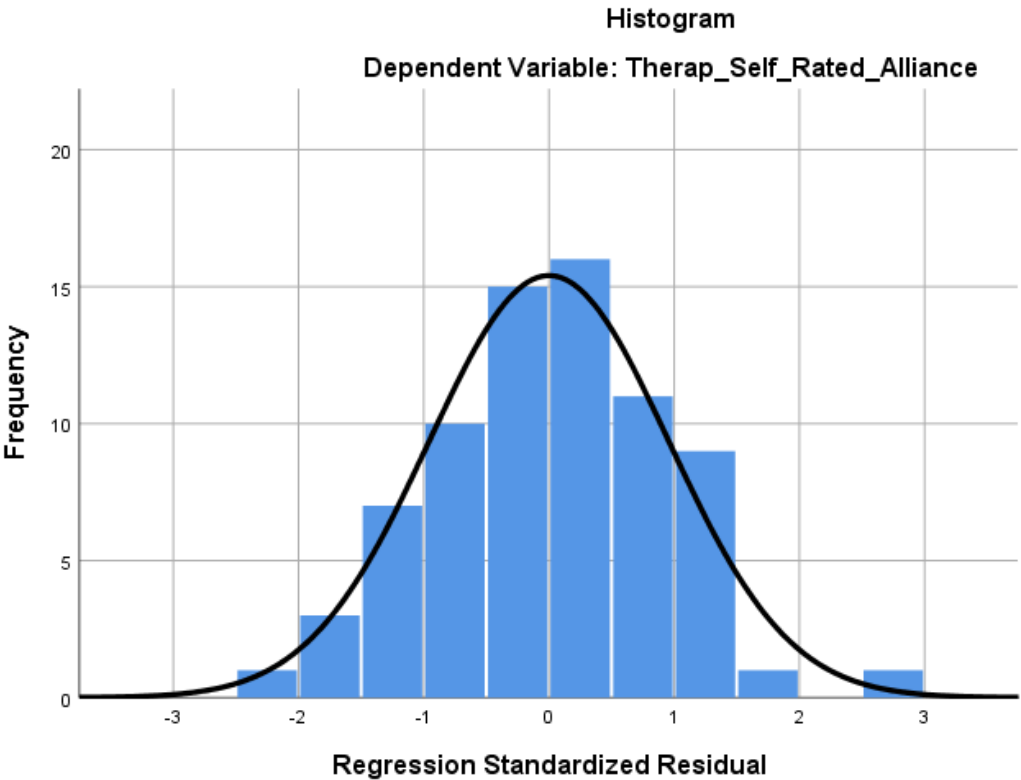
Therapist mean alliance importance residual scatterplot:

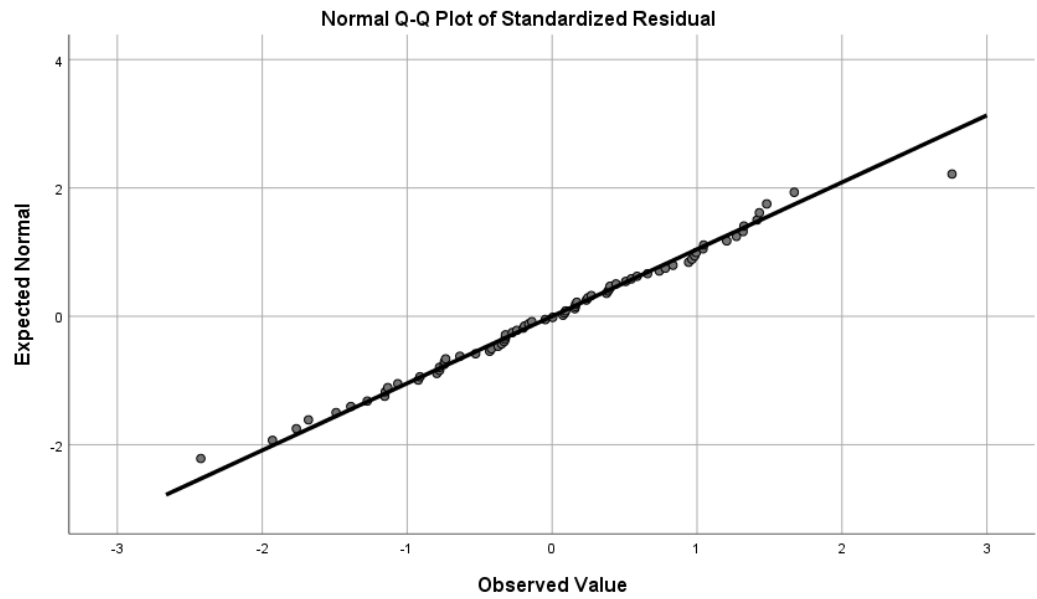


Scatterplot minus one outlier:

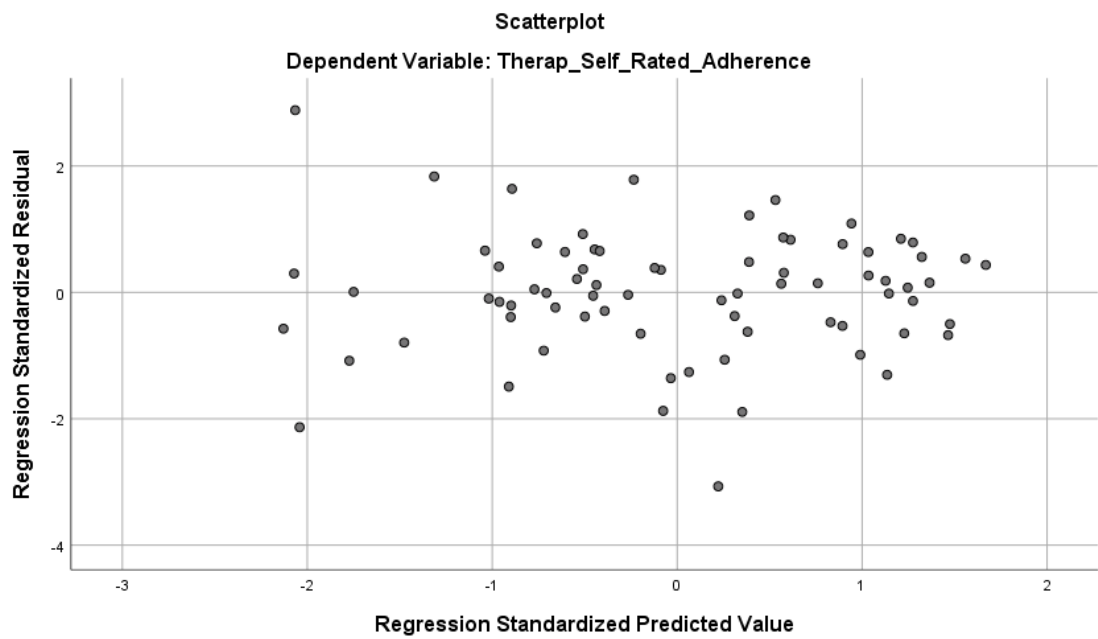


Therapist mean alliance importance standardised residual histogram and Q-Q plot:

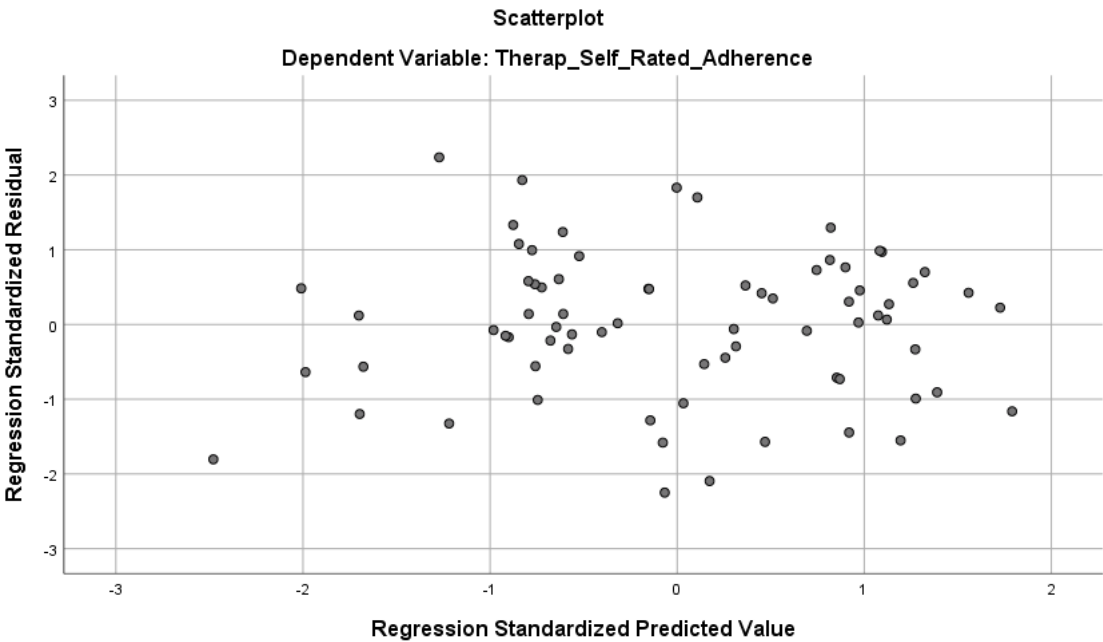




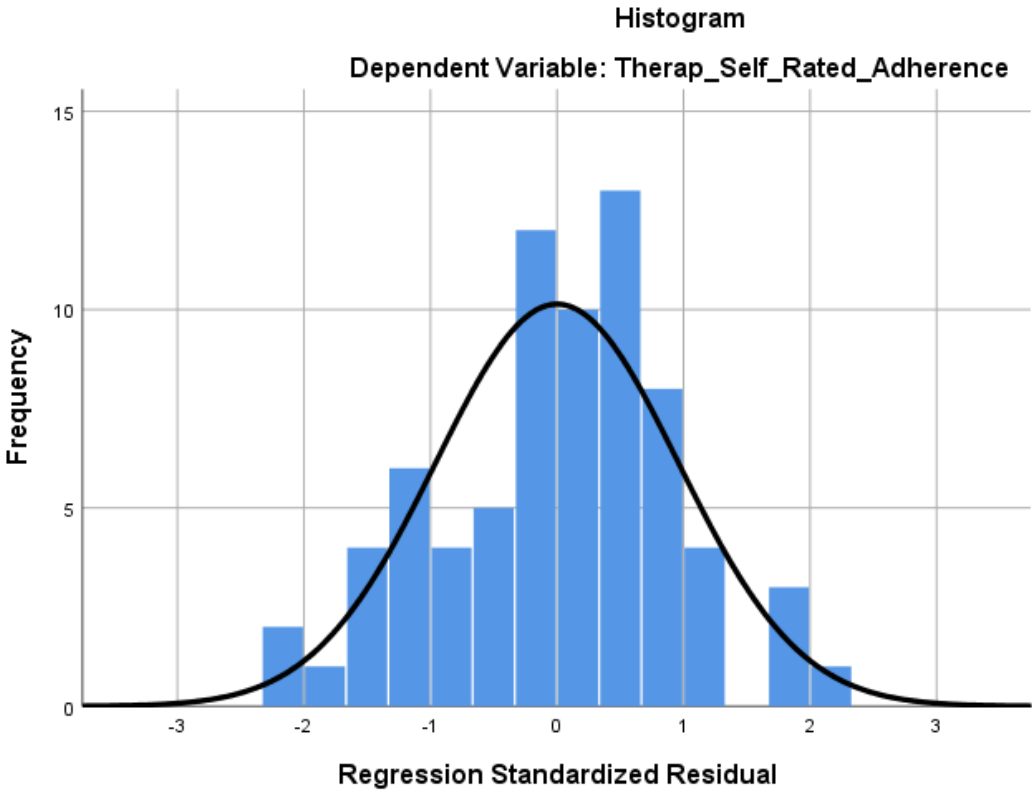
Therapist mean adherence importance residual scatterplot:

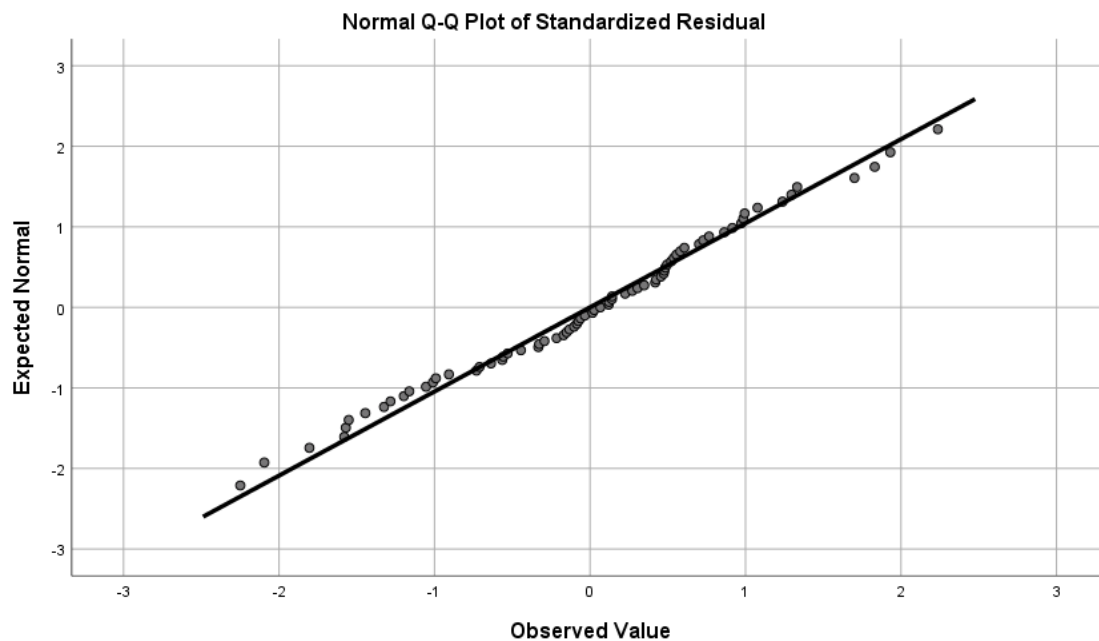


Scatterplot minus two outliers:

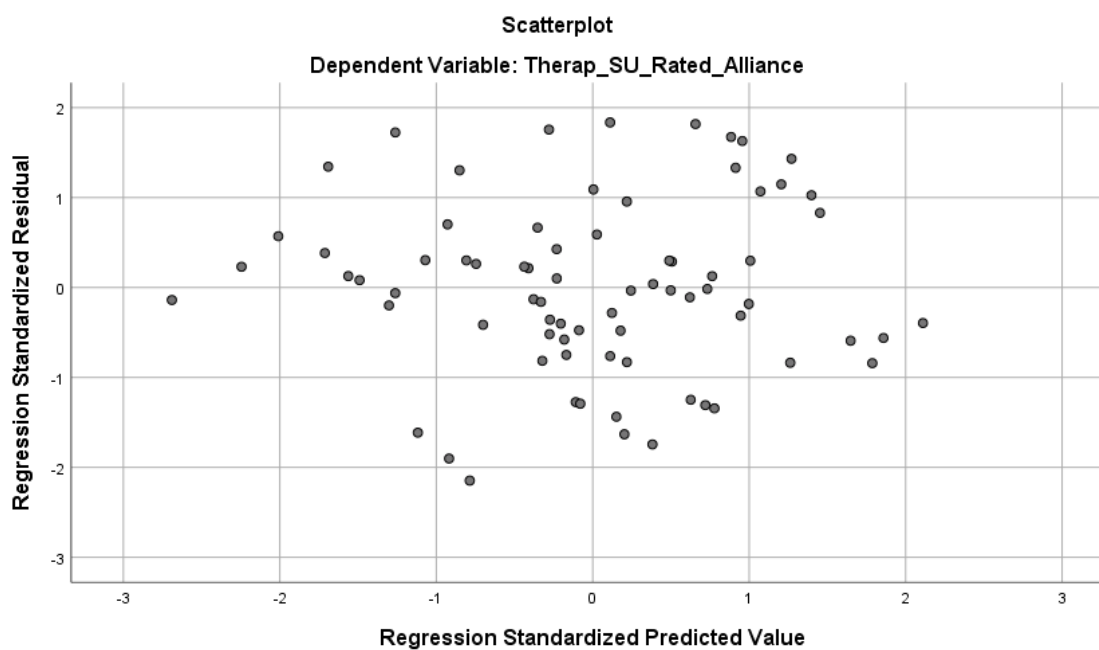


Therapist mean adherence importance standardised residual histogram and Q-Q plot:

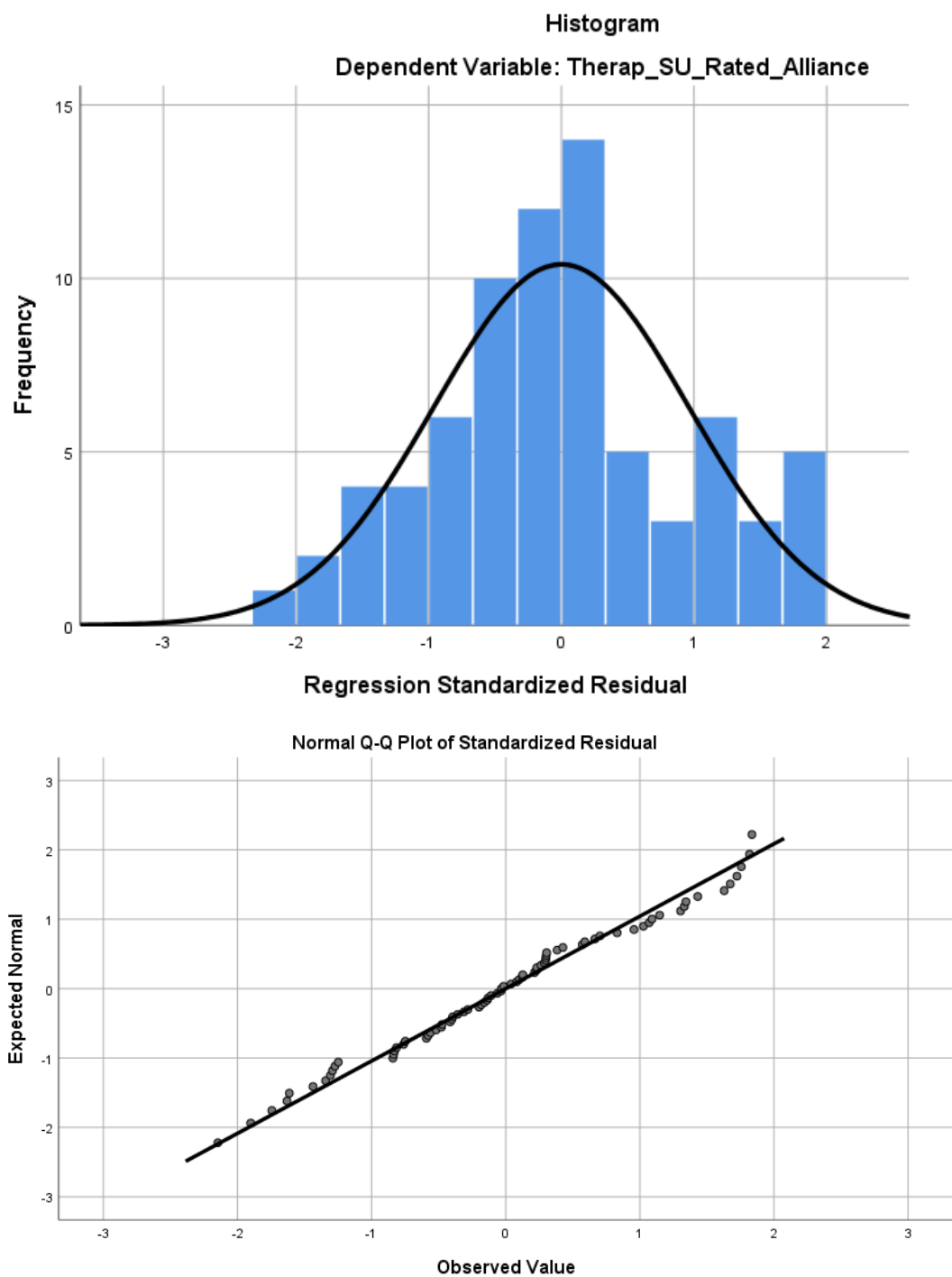




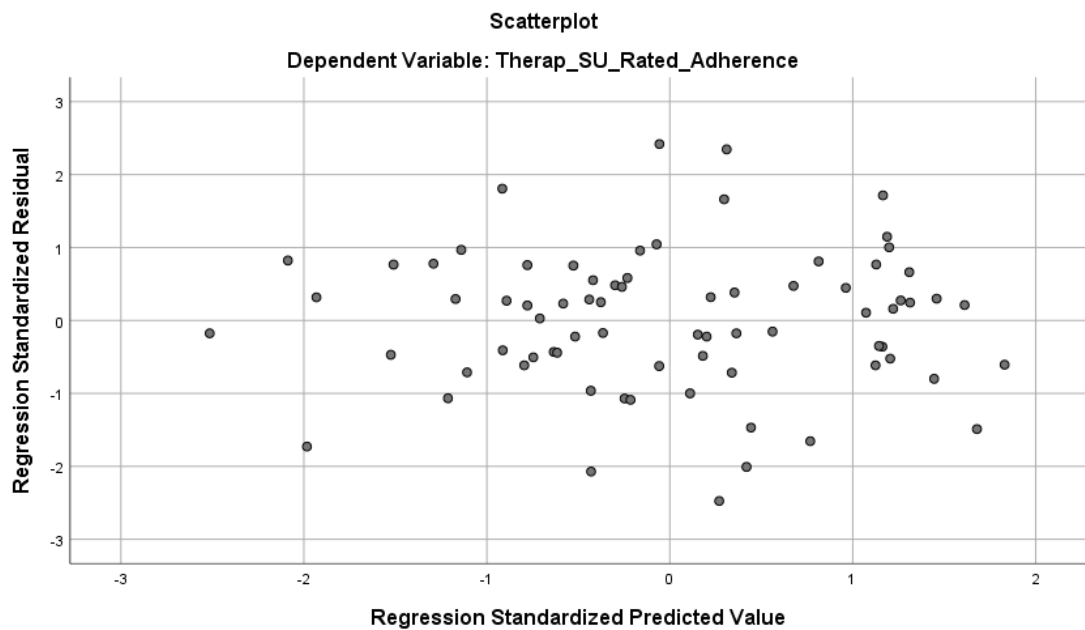
Therapist mean predicted service user alliance importance residual scatterplot:



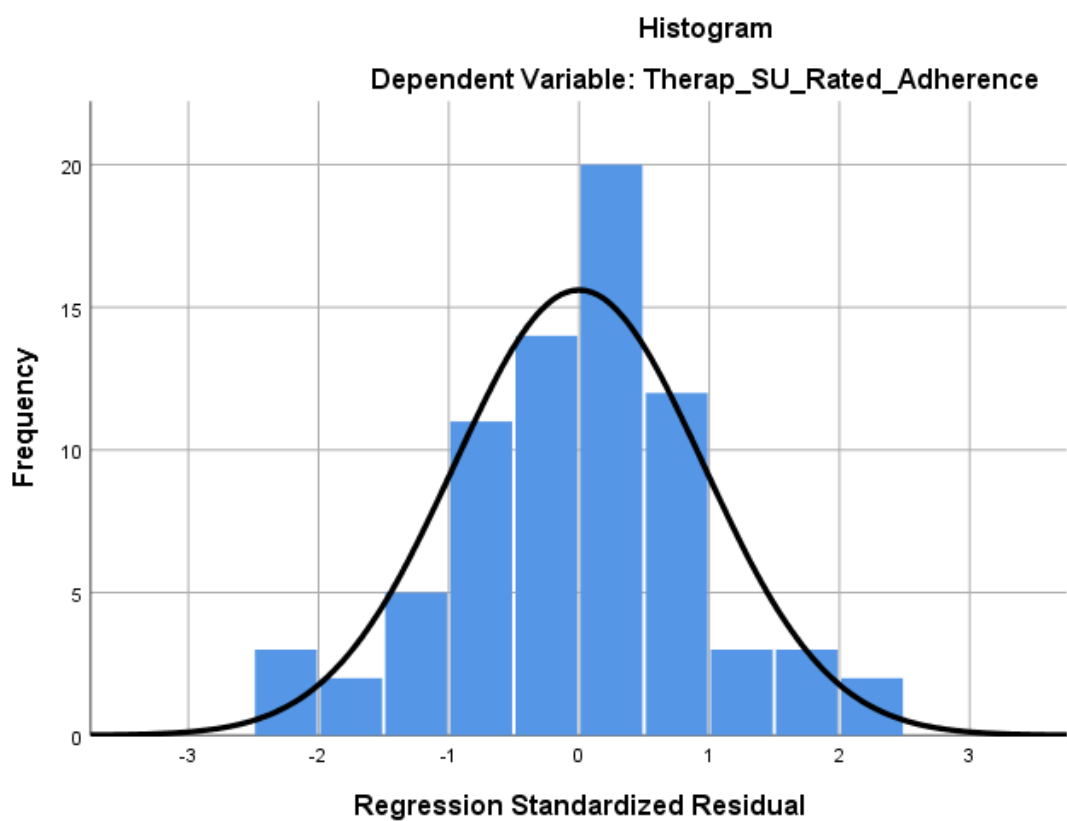
Therapist mean predicted service user alliance importance standardised residual
histogram and Q-Q plot:

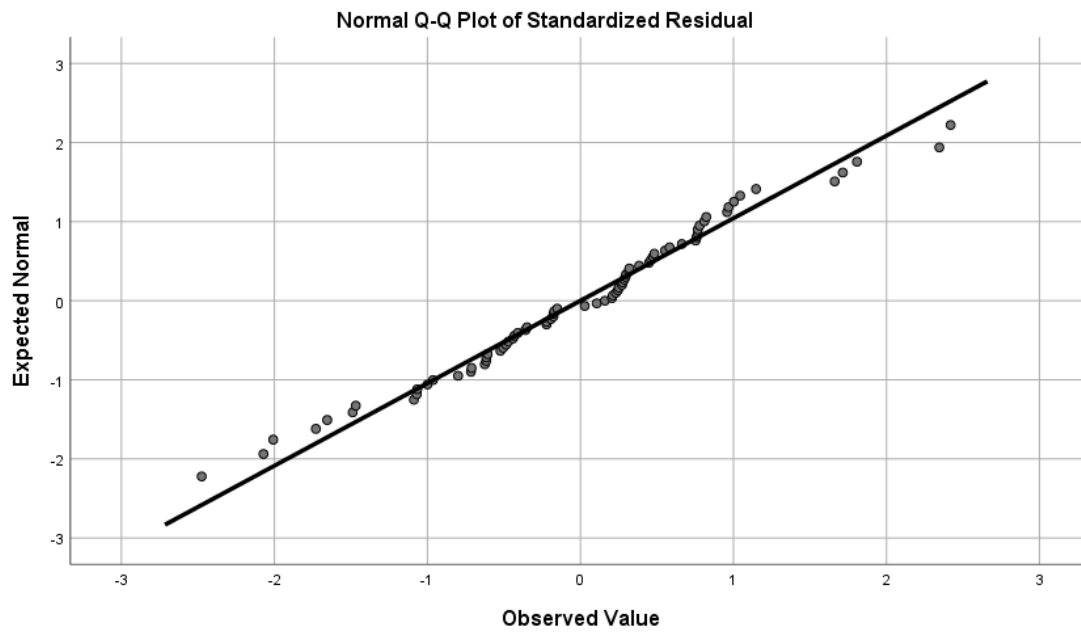


Therapist mean predicted service user adherence importance residual scatterplot:



Therapist mean predicted service user adherence importance standardised residual histogram and Q-Q plot:





Appendix N: Research Contract



Department Of Psychology. Clinical Psychology Unit.

Doctor of Clinical Psychology (DClin Psy) Programme Clinical supervision training and NHS research training & consultancy.

Clinical Psychologist in Training Research Contract (DClin Psy)

This contract is to be completed by the trainee, academic supervisor(s), clinical supervisor(s) and other significant individuals (including collaborating clinicians and service users) directly involved in the proposed study. All parties should retain a copy for their records and a copy should be included as a permanent part of the site file held by the principal researcher. The initial contract should be attached to the research proposal.

This contract covers the responsibilities of all involved in the undertaking of the proposed project and is open to amendment following the review and agreement of all parties concerned. In any event the contract would normally be reviewed annually until submission of the thesis and then quarterly until successful publication.

Precise details of research responsibilities and requirements should be obtained through consulting the Course Handbook, the University of Sheffield Guidebook for Research Students and Supervisors, and local NHS Research Governance documentation¹

Researcher Details

The principal researcher should be indicated by an asterisk and will normally be the academic supervisor as this is required by ethics. However, it should be clear that the trainee holds the primary responsibility for all aspects of the research. Each supervisor's designation should be described in terms of their occupational title and their role in the proposed study (i.e. academic supervisor, clinical supervisor, collaborator etc.). Continue on a separate sheet if necessary.

1. Trainee Details

Name: Ian Johnson

Address: Clinical Psychology Unit, University of Sheffield

Date: 17/08/18

Cathedral Court, Floor F, 1 Vicar Lane,

Signature: 

Sheffield, S1 2LT

Telephone: 07925176839

Email: ijohnson1@sheffield.ac.uk

¹ This is not an exhaustive list and it is the researchers' responsibility to consult additional documentation relating to local responsibilities/requirements.

2. **Academic Supervisor Details**

Name: Professor Glenn Waller Address: Department of Psychology, University of Sheffield
Designation: Head of Department Cathedral Court, Floor G, 1 Vicar Lane,
Date: 17th August 2018 Sheffield, S1 2LT
Signature: 

Telephone: (+44) 0114 222 6568

Email: g.waller@sheffield.ac.uk

3. **NHS/Clinical Liaison Supervisor Details**

Name: Address:
Designation:
Date:
Signature:
Telephone:
Email:

4. **Additional Supervisor Details**

Name: Address:
Designation:
Date:
Signature:
Telephone:
Email:

5. **Collaborator Details (continue on a separate sheet if more than one person is involved)**

Name:..... Address:.....
Designation or role:.....
Date:.....
Signature:.....
Telephone:.....
Email:.....

Key responsibilities of all involved in the project

1. **Trainee**

During the course of the research the trainee is responsible for:

- **The overall development of the research**
- All practical aspects of the study (including recruitment, data management, analysis, budgeting.)
- Arranging and attending regular meetings with supervisors (It is helpful to arrange in advance a set of meetings for each stage of the research)
- Preparing all research documentation (i.e. the research proposal, ethics form, indemnity forms, etc.)
- Submitting accurate expense claim forms.
- Maintaining and updating the site file and this contract
- Ensuring that the academic supervisor has seen and commented upon all drafts or versions of the proposal prior to it being submitted to the research tutors.
- Ensuring that all supervisors and collaborators are kept informed of the progress of the research. It is envisaged that the trainee will prepare and circulate minutes of key research meetings indicating any actions that have been agreed and the date/s of forthcoming meetings. The trainee should ensure that copies of key documents and correspondence are forwarded to all supervisors. The trainee should take responsibility for liaising between supervisors and provide written updates to the research tutors as requested
- Reviewing and updating the research timetable as necessary and planning a research block that enables satisfactory completion of other aspects of the course.
- Ensuring that any documents as required by the course (see course handbook) are submitted to the course administrator in full and on time.
- To ensure that they comply with ethical and professional codes of conduct in carrying out the project including adhering to appropriate personal safety guidelines.
- Ensuring that any data containing personally identifiable information is stored securely.
- Ensuring that any drafts of work that have been agreed to be circulated are provided to supervisors within a sufficient time period to allow a realistic time for review (not usually less than 14 days)

Additional responsibilities agreed with the supervisors:

-
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-

Following completion of the research the trainee is responsible for:

- Ensuring that the site file and other documentation/data as necessary are lodged with the supervisor/course.
- Ensuring that local ethics/NRES and governance instructions relating to the completion of the research project are complied with.
- Ensuring that all supervisor(s) are offered a bound copy of the final thesis and appropriate feedback is provided to the collaborating service and if appropriate participants. The nature of the feedback required by the participating service should be negotiated prior to the trainee completing the course.
- Ensuring that data are stored securely, data files are backed up on computer and access to data for publication has been agreed with supervisors.
- Preparing manuscripts for publication in the target journals identified in the thesis²

Additional responsibilities agreed with the supervisors:

-

2. Academic Supervisor

During the research the academic supervisor is responsible for:

- Attending regular meetings with the trainee (It may be helpful to arrange in advance a set of meetings for each stage of the research)
- Advising the trainee in developing a psychologically relevant research proposal and ensuring that this complies with the department's/NHS research plan and is likely to lead to research of a publishable standard.
- Advise the trainee in considering ethical and professional concerns that may relate to the project including any relevant personal safety issues.
- Supporting the trainee in the preparation of all necessary research documentation.
- Advising the trainee on developing a realistic timetable and planning a research block that enables satisfactory completion of other aspects of the course.
- Monitoring progress and if necessary advising on the revision of the timetable.
- Advising the trainee in addressing any methodological problems as they arise.
- Reading and commenting on a draft (it may be helpful to discuss the format and number of drafts that will be reviewed).

² Preliminary order of authorship should be indicated in the relevant section of this contract.

Additional responsibilities agreed with the trainee or other supervisor/s:

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Following completion of the research the academic supervisor is responsible for:

- Advising the trainee in preparing manuscripts for publication in the target journals identified in the thesis
- Ensuring the site file and data is stored in a secure place and is accessible for any future audit process.

Additional responsibilities agreed with the trainee or other supervisor/s:

-

3. Clinical supervisor:

During the research the clinical supervisor is responsible for:

- Attending meetings with supervisors as needed (It may be helpful to arrange in advance a set of meetings for each stage of the research)
- Advising the trainee in developing a realistic timetable for the research and monitoring progress and if necessary assisting in revising the timetable.
- Advise the trainee in considering ethical and professional concerns that may relate to the project.
- Supporting the trainee in being aware of and complying with appropriate local R & D procedures.
- Supporting the trainee in accessing participants.

Additional responsibilities agreed with the trainee or other supervisor/s:

-
-
-

Following completion of the research the clinical supervisor is responsible for:

- Advising the trainee in preparing manuscripts for publication in the target journals identified in the thesis
- Advising on the nature of the feedback required by the participating service.

Additional responsibilities agreed with the trainee or other supervisor/s:

-

4. Additional supervisor:

During the research the supervisor is responsible for:

- Attending regular meetings with supervisors (It may be helpful to arrange in advance a set of meetings for each stage of the research)
- Advising the trainee in developing a realistic timetable for the research and monitoring progress and if necessary assisting in revising the timetable.
- Advise the trainee in considering ethical and professional concerns that may relate to the project.
- Supporting the trainee in being aware of and complying with appropriate local R and D procedures.
- Supporting the trainee in accessing participants.

Additional responsibilities agreed with the trainee or other supervisor/s:

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Following completion of the research the supervisor is responsible for:

- Advising the trainee in preparing manuscripts for publication in the target journals identified in the thesis
- Advising on the nature of the feedback required by the participating service.

Additional responsibilities agreed with the trainee or other supervisor/s:

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5. Additional collaborators:

During the research the supervisor is responsible for:

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Following completion of the research the supervisor is responsible for:

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Continue on a separate sheet if there are additional supervisors.

Authorship & dissemination

Please indicate a working title (or thesis section) for each planned publication and significant presentation/s relating to the thesis. Indicate the rationale for authorship. It is envisaged that the trainee will be the first author on all publications directly arising from the thesis. Additional collaborative publications arising in part from the thesis or data derived from the thesis may have another individual as the first author. It is envisaged that the two primary papers arising from the thesis would normally be submitted by the trainee within 18 months of submission. If this is not the case, the trainee should agree an alternative strategy (e.g. supervisor responsible for publication) with the supervisors concerned.

1. Proposed title or thesis section (i.e. literature review, empirical study etc.)

An investigation into the assumed value of the alliance relative to adherence within Cognitive Behavioural Therapy: A comparison of therapists' and service users' beliefs.

An investigation into the assumed importance of the alliance relative to adherence within Cognitive Behavioural Therapy: A comparison of therapists' and service users' beliefs.

Proposed order of authorship

Ian Johnson, Glenn Waller

Rationale for authorship (including order)

As stated – "It is envisaged that the trainee will be the first author on all publications directly arising from the thesis"

Proposed submission date

To be confirmed

2. Proposed title or thesis section (i.e. literature review, empirical study etc.)

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Proposed journal / conference presentation / book chapter

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Proposed order of authorship

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Rationale for authorship (including order)

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Proposed submission date.....

3. Proposed title or thesis section (i.e. literature review, empirical study etc.)

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Proposed journal / conference presentation / book chapter

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Proposed order of authorship

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Rationale for authorship (including order)

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Proposed submission date.....

Continue on a separate sheet if necessary.

Please update this contract at least once a year and at other times as necessary.